

V.4 #18  
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## THE WEEK'S NOTES AND COMMENTS

The automobile has once more demonstrated its usefulness under extraordinary conditions. Taking the entire country into consideration, last week's hot spell was one of the most trying we have experienced in many years. New York was particularly afflicted. Prostrations of man and beast were occurrences of every moment and on July 2 so great was the strain upon them that the hospitals were absolutely unable to respond to the calls for ambulance service.

In this extremity the Roosevelt Hospital called up the Locomobile company. A survey was dispatched at once and rendered good service during the greater part of the day. Between 11 and 12 o'clock the survey carried 18 cases to the hospital, four of which finally resulted fatally. The carriage was in service as late as 11 o'clock at night and handled in all 37 cases.

The next day two vehicles were used instead of one. The two attended to practically all the ambulance business of the day, the horses being completely exhausted.

The New York Journal and World turned their automobile delivery wagons into ambulances, and they did effective work in their new capacity.

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### Safe Course for Speed Tests

A chauffeur, in conversation with an Age man, recently dwelt on the advantages of the Central Boulevard on Staten Island for speeding. There are no roads around New York, outside of this, on which an automobilist who has a machine of any great speed can let it out with safety. The Central Boulevard was laid out at the time Staten Island expected consolidation with New York and the latter city paid for the work. It has a fine surface and has at one part one and one-half miles straightway perfectly level. There is hardly a house on the street,

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which runs from one end of the island to the other, and this fact will undoubtedly draw it to the attention of automobilists who desire to test the speed of their machines.

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### Show, but no Track

Formal notice has been given by the Madison Square Garden management of the second annual automobile show there, to be held November 2 to 9. Diagrams have been issued showing 111 spaces, aside from the center of the floor which contains a dozen more, varying in size from 700 to 1,500 square feet. The track has been omitted this year. All the center spaces will cost \$1.25 per square foot and all others \$1.00 each.

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### Dealers Need Organization

It's about time the automobile agents of this city got together for mutual protection," said a New York dealer to an Age representative recently. "The city authorities are continually suggesting something to injure our business, speculative auctioneers are endeavoring to demoralize prices, and now the commission fiend is trying to get in his fine work. I am receiving on an average two letters a week from people who state that they have a friend who desires to purchase an automobile and want to know what there is in it for them.

"These fellows make me tired. They hear someone say that he thinks of buying a machine and immediately write to all the local agents asking what they can get for influencing a sale. The prospective purchaser goes around to the various agents, selects his wagon and later on the friend comes around for his commission. He has done absolutely nothing to create the sale and yet, by reason of his writing, expects a rake-off.

"Last week a slick-looking individual came in here and tried this game. He mentioned the name of a man who had

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bought one of our machines a few days before and said he expected a commission on the sale. 'What for?' I asked. 'Why, didn't I write I was going to send him here?' he replied. I gave him a talk which I think will teach him a lesson. If we had an organization we could cover this matter and others like it very thoroughly. The typewriter dealers have a local association which has remedied this and similar evils effectively."



### Edge Breaks Records

S. F. Edge, with his huge vehicle, made two records on June 23 on the road to Chartres, near Paris, but it is doubtful whether his records will be accepted, as no official timekeeper from the automobile club was present. He covered the kilometer (1,093 yds. 2 ft.), with flying start, in :30 2-5, a speed of 118 kilometers 473 meters (very close to 74 miles), to the hour, which breaks the previous record of 34 1-5 s. made by Serpollet in Nice. He also covered 5 miles in 4:44 3-5, or an average speed of 101 kilometers 776 meters, or slightly over 63 miles per hour.



### After the British Demonstrations

A demonstration similar to that given last week for the benefit and enlightenment of the aldermen of Chicago has just occurred in England. It occupied three days, and took place in London, co-councillors from all parts of the country being present to the number of 250. Of course there was the inevitable dinner, and at this Earl Grey presided and did most of the talking, as chairmen do at English functions. But this time the chairman had something to say in which his hearers were interested for he had been impressed by the demonstrations. He looked upon the automobile, he said, as being likely to prove the solution of the question of congested districts. He pointed out the danger of unduly interfering with the motor industry. As a breeder of horses, he saw no objection to the new form of transit, as he was convinced that in a short time horses would entirely cease to notice them. From what he had seen he was convinced that in the hands

of a capable driver a great speed was possible with much less danger to the public than from that of horse-drawn vehicles. There were conditions which a speed of 40 miles an hour might be employed with perfect safety.

Another great point in regard to the motor car was that it did not require a scavenger behind it. He hoped no further restrictions would be imposed, but that the industry would receive the same encouragement which it was receiving in France and Germany, which were on this account far ahead of this country. Let the industry be unfettered, and it would soon provide employment for thousands of workmen at high wages.



### California Club Makes Changes

The Automobile Club of California has elected a new set of officers as follows: F. A. Hyde, president; Dr. F. J. Tillman, vice president; R. R. L'hommedieu, secretary; Byron Jackson, treasurer. Six governors were also elected: C. E. Moore, A. E. Brooke-Ridley, S. D. Rogers, W. H. Taylor, A. M. Hunt, and Miles T. Baird. Of these C. E. Moore represents the interests of steam vehicles. A. E. Brooke-Ridley represents electric vehicles and S. D. Rogers those propelled by gasoline. The dues have been fixed at \$2.50 per month for owners, and \$1 a month for non-owners of vehicles. Women will be admitted to membership. The club rooms have been moved from the Parrott building to 415 Montgomery street, San Francisco.



### Sixty-Mile an Hour Sensations

S. F. Edge, the English competitor in the late French races has made such use of his tongue and pen relative to his performances as to excite unfavorable comment. He recently chatted to this effect with a representative of a London daily:

"My own car is geared to do 103 miles an hour, at 1,000 revolutions per minute, but I can't get anything more than 80 miles an hour out of her because she isn't heavy enough, and the wheels simply slip on the ground. With a car weighing 2,000 pounds you can cover 40 miles an hour comfortably, but to touch 60 miles you want a car nearly twice as heavy to en-

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able the wheels to keep on the ground.

"The difference between traveling at 50 and 60 miles an hour is terrible. At 50 miles I find I can travel quite comfortably. But the force of the wind when you're going at 65 is almost unbearable. Another thing is that the extra 15 miles makes such a difference on the horses you pass. A horse don't mind a car going by him at 50 miles an hour one bit, but one going at 65 frightens him out of his wits. Then you want really a special track for speeds like that. A curve in the road is out of the question when you're traveling 65 miles. Mr. Swindley said when I went by him over the measured kilometer on Sunday that all the four wheels appeared to be off the ground. Well, I don't quite believe that, but one can often tell by the way the engines race that one or two wheels are thrown up by a bumpy bit."



### Extends Line and Capital

About the time of the Chicago show it became known among a few people that the National Automobile & Electric Co., of Indianapolis, was preparing to manufacture a gasoline vehicle. With this end in view a new company has been organized with \$150,000 capital, known as the National Vehicle Co., and the new concern will take over the business of the old one. The directorate is practically the same. The Pumpelly battery will be used hereafter and Mr. Pumpelly is now actively connected with the business.



### Pacific Coast Record

San Jose, July 9.—H. T. McKnight of New York broke the Pacific coast record for automobiles here by driving his machine over the Monterey road course one mile in 1:12. The road was in only fair condition.



### Principally About Speed

There was a meeting of automobile users at St. Louis on the first day of the month to protest against the proposal to impose a tax of \$20 on machines. A number of influential people were there and it was arranged to meet again this week

and to invite a larger attendance. The St. Louis people seem to be thoroughly aroused over the matter.

York, Pa., also has a fight on hand. The toll road people, as was reported last week, want to charge them 10 cents a mile for traveling over the pikes. Several owners have refused to pay the tax and have been prevented from using the roads. Now they intend to see what can be done about the matter in the court.

The Nassau (L. I.) board of supervisors has adopted a limit of eight miles an hour in cities and 15 miles in the country. It has also added this to the law: "Every person driving an automobile shall at request or signal by putting up the hand from a person driving or riding a restive horse or horses, or driving domestic animals, cause the automobile immediately to stop, and to remain stationary as long as may be necessary."

The officials of Forest Park, St. Louis, are after the automobile scorchers and threaten to make an example of the first one they catch.

Jackson, Mich., has placed the speed limit at eight miles an hour. Lamps will be required at night.



### Brewer and His Bearings Again

The National Roller & Ball Bearing Co. has been organized at Alexandria, Va., to operate under certain patents owned by W. J. Brewer. The capital is \$200,000. The officers are C. E. Wood, president; W. S. Knox, vice-president and treasurer; W. E. Leary, secretary and general manager, and W. J. Brewer, consulting engineer. The addresses of all are given as Washington, D. C. Mr. Brewer has long been in possession of a number of patents on roller bearings which he has contended would one day become valuable. The automobile industry may furnish the opportunity for which he has been so long waiting.



### Siegel-Cooper to use Electrics

The first big move of the Crowds Automobile Co. since Frank H. Cooper became its president and bought out the stock-

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holdings of earlier backers of the inventor, has just been made in the placing of an order to remodel the entire outfit of Siegel-Cooper delivery wagons and turn them into electric vehicles. The new company was organized in March, and began to build the new automobiles 10 days ago. Its capital is \$150,000. Its officers are: Frank H. Cooper, president; Walter A. Crowds, vice president and general manager; Charles Cooper, treasurer; Worth E. Caylor, secretary.



It is reported that the new company formed to exploit the Edison battery is already in a fight with the Electric Vehicle Co. Mr. Edison's retirement from the board of the latter is one of the results. The dispute seems to be over the fact that the old concern has adopted the Stowager battery, recently described in Motor Age.

C. W. Bennett, managing director of Bennett & Wood, Ltd., of Sydney, N. S. W., is on his way to England and will go home by way of the United States. He is on a purchasing trip. Questioned just before he started as to the form of vehicle he preferred for the Australian trade he declared that in his opinion nothing could compare with gasoline.

An English physician, writing to the Lancet, has compared his expenses in making his round of visits in the country when he used a horse and now that he is using an automobile. His results show the annual cost to be £25 10s. 6d with the automobile, and £50 7s. for a horse and buggy.

Later reports of the Paris to Berlin race show that Fournier was actually 24 hours 5 minutes on the road, but that, on account of stoppages rendered necessary by the rules governing the race, his actual running time was only a little over 16 hours. The times of the leaders were: Fournier, 24 h. :05 m; Girardot,

25 h. :07 m.; De Knyff, 25 h. 11 m.; Brazier, 25 h. 42 m.; Farman, 26 h. 21 m.; Charron, 26 h., 51 m.

W. L., B. B. and H. L. Culver, and W. C. Youngblood, whose departure from St. Louis en route to Buffalo was duly chronicled in this paper, found it necessary to take a train at Decatur on account of bad roads. They expressed their machine to Fort Wayne, hoping to find better roads beyond that point.

The Universal Motor Co. has been organized at Augusta, Me., to manufacture and deal in motive power by the use of compressed, cold or liquid air or electricity, with \$10,000 capital stock, of which nothing is paid in. The officers are: President, E. G. Briggs; treasurer, I. L. Fairbanks, both of Augusta.

Alfred C. Bostwick is credited with having traveled three miles, at the track of the Gentlemen's Driving and Field Club, Long Branch, N. J., on July 5, in 3:52½. He rode the first mile in 1:18¾, the second in 1:16¾, and the last in 1:17. He used a vehicle of 40 horse power.

The Bloomsburg (Pa.) Automobile Club has been organized, with J. M. Stover, president; K. P. Wirt, vice-president; G. L. Low, treasurer; C. W. Funston, secretary, and E. B. Tustin and M. I. Low, directors.

A New Jersey court, having heard the plea of Benjamin Mayer to restrain the New York Electric Vehicle & Transportation Co. from collecting an assessment on the stock, has refused the order.

The Maryland Automobile Co., of Luke, Md., has just completed a small automobile United States mail wagon for the government, which will shortly be given a test.

A number of members of the Cleveland Automobile Club, among whom were several men well known in the trade, made a century run last week in a little less than 10 hours, including stops.







## INFORMATION FOR BUYERS AND BUILDERS



Richard M. Shaffer, of the Shaffer Engine Mfg. Co., of Baltimore, was in New York last week showing the operation of his Giant engine and the new Shaffer boiler. Mr. Shaffer has established temporary quarters in a Fifth avenue automobile station and his exhibit attracts considerable attention. The engine is very compact, rigid and powerful, and

it is said can withstand great speed, having no delicate parts.

The steam chest and cylinder heads are ground joints. The valves are balanced, reducing the friction to a minimum. The bearings are very heavy and made of phosphor bronze. The engine is enclosed and runs in oil. It has a distinct reverse motion by which straps are



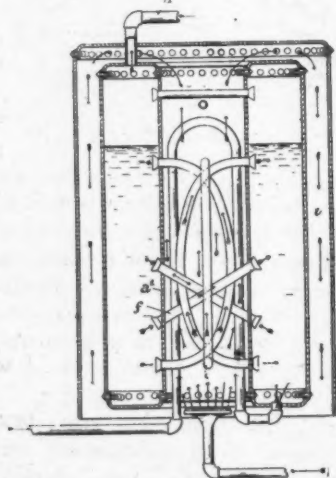
THE SHAFFER STEAM TANDEM.

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dispensed with, and only one eccentric used. There is no packing to blow out, the piston rods being supplied with patent rings or cages which makes them steam tight.

The Shaffer boiler has many distinctive features. It has but nine joints. The  $4\frac{1}{2}$ -horsepower boiler measures 14x15, and weighs about 60 pounds. It is neither water tube nor tubular. Mr. Shaffer described its operation as follows:

The gas, or oil, from the burner is first lighted to heat the tubes in the central passage B and also to heat the parallel water pipes c1. The water supply is then turned on and water passes through the pipe c and up one of the parallel pipes c1 and down the other parallel pipe to pipe c3, and thence into the generator. By thus directing the cold feed-water up and then down through the hot pipes in the central passage B, the water is delivered to the generator



The Shaffer Boiler.

already heated, and when the generator is sufficiently filled the water supply may be shut off. In this condition the curved tubes e and inclined tubes f are all filled with water, and the flame and heat from the burner will play on all the tubes and will be deflected against the wall a1 of the generator and continue up through the passage B, and the current of hot air from the flame will be deflected at the top by the shell H and caused to spread over the top and down around the

outside of the walls a of the generator in the space i, and finally be carried off at the opening at the bottom. Heat is applied to the water in the generator through the tubes in the center passage and on the inside at top and also on the outside wall a, thus producing a rapid circulation of water and a quick generation of steam. The Shaffer company will be represented in New York by John F. McConnell, 114 Fifth avenue.

The Shaffer steam tandem is a production of the same people. Mr. Shaffer, with one of his mechanics, has given several speed exhibitions on the trotting track at Baltimore. The manager of one of the Baltimore tracks last summer offered Mr. Shaffer half the gate receipts if he would do a mile inside of 2 minutes and the tandem carried off the money with a mile close to 1:50. The steam tandem was built to demonstrate that the Shaffer boiler may be fitted to and operated successfully with this form of vehicle.

### The Latest Riker Creation

A. L. Riker completed, not long ago, at the Elizabethport factory of the Electric Vehicle Co., a gasoline carriage of the tonneau type. It is regularly a four-passenger vehicle, but the rear seats may be removed, leaving a platform for baggage, making a convenient touring car for two people. The running gear is of the Riker tubular double-reach pattern, with wood wheels and pneumatic tires. There are four springs, two double elliptics in front, and a pair of semi-elliptics in the rear. The weight, complete, is about 1,675 pounds.

The power is supplied by a vertical two-cylinder water-cooled engine, capable of developing nine horsepower at a normal speed of 900 revolutions per minute. It has 4x4 cylinders, with cranks set at 180 degrees, and runs with little vibration.

In design the engine is extremely simple. Both cylinders, with the water jackets, and valve chambers at the sides of the cylinders, are cast in one piece. All four valves can be removed by loosening one bolt. All the working parts are enclosed in the cast iron crank box, and are lubricated by the splash method. The lower part of the crank-casing can be

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removed to get at the enclosed parts without releasing the engine from the frame.

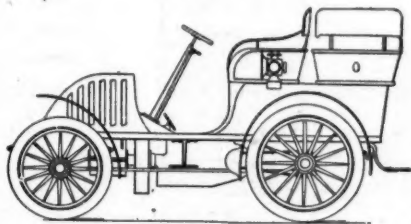
The admission valves are automatic and the exhaust valves are actuated by cams on the cam shaft, which is enclosed in the crank casing at the left side of the engine. The cam and cam gears thus run in oil. On this shaft are the gears for driving the rotary water pump, and at the end, outside of the casing, is the ignition apparatus which is enclosed in a removable case.

The jump spark system of ignition is employed, current being supplied by a battery of five large dry cells, located in a box under the seat. The spark coils, one for each cylinder, are enclosed in a box at the right of the engine. This arrangement brings the parts of the ignition system as near together as possible, rendering the parts easily accessible.

A single vaporizer serves both cylinders, and is placed close to the engine where it may be easily reached through a door in the side of the bonnet. It has a needle valve feed, the gasoline being led directly from the tank to the bottom of the vaporizer where the feed valve is placed. The gasoline is prevented from flowing directly into the vaporizer by a needle valve, which is normally held closed, by a long, helical spring, as shown in the illustration. A little above the needle valve, and on the shaft thereof, is a valve of large diameter, normally resting on a seat around the sides of the vaporizer. When suction takes place in one of the cylinders this valve and the needle valve are lifted and a certain amount of gasoline enters and spreads over the fine brass wire gauze below the gasoline opening. The air is drawn in, at the same time, through openings around the gasoline pipe at the bottom. The air passes up through the wire gauze, gathering the gasoline in its course. To provide against the freezing of the vaporizer in cold weather a pipe is provided whereby warm air may be taken from a point near the cylinder and admitted to the vaporizer through an opening in the side. The amount of warm air admitted is controlled by a valve. An adjustable screw stop, not shown, also regulates the lift of the needle valve. These adjustments once made require little attention.

Near the top of the vaporizer are two pipes leading to the cylinders. An internal annular valve is provided, by which the size of the openings leading to these pipes may be varied, and the motor throttled. The gasoline tank is located under the seat, and has sufficient capacity for 200 miles.

The water tank is secured to the front side of the dash, inside the bonnet, and has a capacity of five gallons. The cooling coil is secured to the frame in front of the motor, and is made up of horizontal flanged brass pipes so arranged as to conform with the shape of the front of the steel bonnet which is cut away in front of the coils. Bolted to the frame, directly back of the motor, is the speed gear device. It is of special design and of the planetary system, giving three speeds for-



The Riker Vehicle.

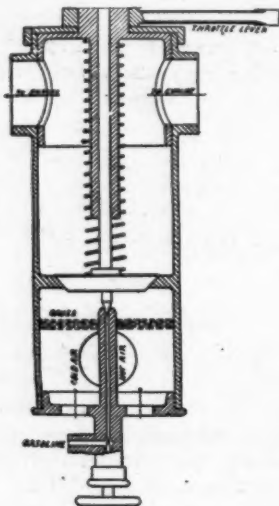
ward and a reverse. The entire gearing runs in an oil tight casing, which is provided with a removable top plate for providing easy access to the mechanism. The bottom of the case may be removed for the same purpose. The ratios of the shaft speeds in the three forward gears are: Low gear, 1 to 4; intermediate, 1 to  $1\frac{1}{2}$ ; high, 1 to 1.

The shaft from the gear box extends back to a countershaft running across the body and carried by bearings bolted to the under side of the frame on each side. A bevel gear on the rear end of the gear shaft drives another bevel gear on the countershaft. The ends of this countershaft carry sprockets which drive other sprockets on the rear wheels by means of heavy roller chains. The differential is provided with a brake drum upon which acts a band brake, operated by a hand lever, located outside the body, and handy to the operator. This lever works on a notched

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quadrant by means of which it can be set at any point. Brake drums are also secured to the hubs of the rear wheels, the band brake which acts on them being operated by a foot lever at the left of the steering column.

The carriage is operated from the left side. The steering is by wheel, the col-



Riker Carburetor.

umn of which is inclined at an easy angle for the operator to control it. The throttle on the vaporizer and the ignition is controlled by two small levers, conveniently located on the steering column. The speed changes are operated by means of four foot levers conveniently placed in the foot board.

### Designed to Burn Kerosene

English users of steam vehicles are agog over a kerosene burner recently offered for their approval by the Clarkson & Capel Steam Car Syndicate.

Many a time and oft attempts have been made to design a burner which will permit the use of kerosene instead of gasoline. The successful accomplishment of the feat means a great deal for the man who accomplished it. Kerosene is cheaper and safer to handle than gasoline, and beside has greater heating capacity. But its vaporization has been found difficult, and such experts as are engaged by the Standard Oil Co. are unable to tell of any

device which has successfully accomplished the feat under all conditions.

All users of steam vehicles are familiar with the methods of generating vapor for their burners. A torch or blow pipe is first applied. After steam has been raised the heat of the steam, through which a pipe carrying the gasoline runs, does the work. This has been found useless with kerosene, the heat being inadequate. The same has been found true of most of the devices in which the heat of a flame has been relied on to do the work. Some burners, running at full pressure, will use kerosene for a time, but all give trouble from corrosion, and when the flame is turned down the burner fills with oil and becomes useless. The amount of heat required to vaporize kerosene seems to be unknown even to men whose business it is to know all about oil, but certain it is that the degree is far higher than it has been possible to apply up to date.

With all due respect for the ideas of its English friends Motor Age is constrained to express the opinion that the Clarkson burner will be no more successful than others which have preceded it. It is a modified Bunsen, that is to say a burner in which the gas, in its passage through a tube, syphons in air to mingle with it and produce a perfectly combustible mixture. Reference to the drawings will make its construction plain. The oil is carried in a copper tank under an air pressure of 40 pounds. It is led by the pipe to the coil, around which it circulates and where it is vaporized, the vapor passing to the inlet valve chamber D2 whence it issues for mixture with the air by the aperture therein opened to any desired degree by the needle valve D.

An English contemporary declares that the secret of the success of the device "is the possibility of increasing the feed of the oil vapor and the grate area" (meaning the burner "opening") "in requisite proportions, so that back firing never occurs. This is effected by screwing down wheel C1 and the gear marked C, by which the needle valve D is opened or shut, and the lily-shaped closer B raised or lowered simultaneously. The burner is ignited in the first instance by compressed gas, which is introduced

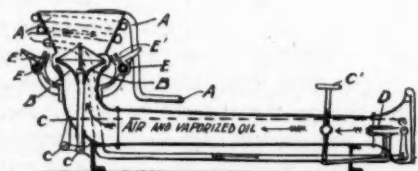


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to the encircling pipe E and burned through the jets E1."

In regard to the fouling of the boiler tubes with soot Mr. Clarkson says that he has never had the slightest trouble, though he has used the burner under boilers of a great variety of types, including water tube, fire tube, marine and flash, and has been able to use the common domestic illuminant with the same cleanliness and freedom from odor as the lighter oil.

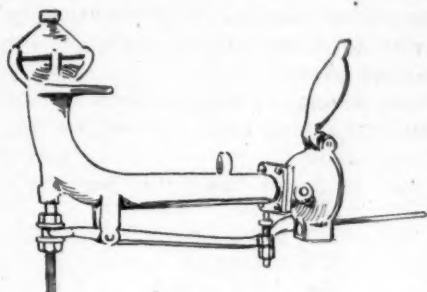
The burner, by which is meant the actual point at which the vapor is consumed, may be successful. The trouble with the Clarkson device will be the corrosion of the coil through which the kerosene passes, and in which it is heated and vaporized. There are innumerable gasoline devices in which the oil is vaporized in the same way. Indeed the Clarkson plan is only a modification of practically every one of the methods in use. Even with the lower grades of gasoline the inside of a pipe, thus exposed to flame, corrodes. The lower the grade of oil the quicker the deposit of carbon. In large apparatus, carefully attended to every day by a workman, it will be possible, no doubt, to use the Clarkson device, but in steam vehicles, in which the removal and replacement of the coil would mean so



much trouble, to say nothing of expense, for the operator that he would become disgusted with it, the success of the burner is extremely doubtful.

Mr. Clarkson has also perfected a condenser and oil separator by which he is able to recover the water of condensation and purify it from oil for repeated use in the boiler. Recently a trip of about 300 miles was made in a carriage fitted with this device, and at the end of the journey the water remaining in the tank was found to be remarkably pure and free from grease. The separation of the oil

from the water was done so thoroughly that it was possible to recover the cylinder lubricating oil for use again, thus



having the double advantage of reducing the cost for expensive cylinder oil, and of being more independent in the matter of fresh supplies when touring.



### The Hydra Battery

The Hydra Double Battery Co., 32 Broadway, New York, is a comparatively new concern, but is making a battery that has been thoroughly tested in Europe, particularly in Germany, where it has gained a wonderful reputation.

The battery is a primary cell of peculiar and expensive construction, but its capacity is claimed to be so great as to far more than make up for the difference in cost, and make it, in reality, the most economical primary battery in the market. It is said to be entirely free from local action and interior short circuit, and has quick and positive recuperative qualities.

The diagram shows a vertical section of one of the 30-amphère, 1½-volt cells, 5¼x3¾ inches in size. Four of these cells are formed into a large 6-volt, 30-amphère sparking battery, which is applicable to automobile, marine or stationary gas engines, and may also be used for gauge and side lights.

The construction of all Hydra cells is, of course, the same. They differ only in size.

Letter A shows the outside metal containing case, which with the cement composition B at the top, completely seals all the elements from the atmosphere. C is the porous carbon cylinder, the cavity of which, D, contains a composition

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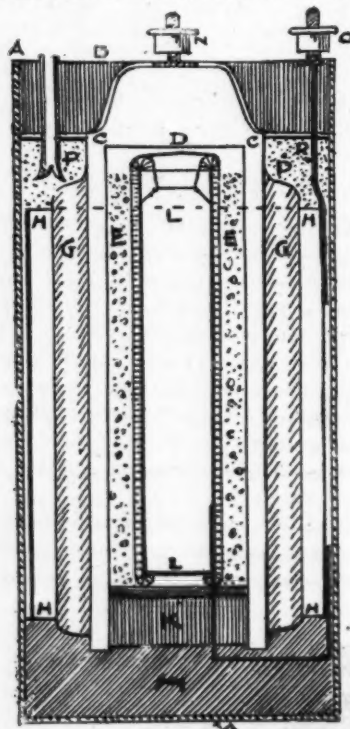
zinc cylinder, L, filled with a generating fluid (electrolyte) of secret composition. Outside of this inside zinc is an absorbent paste depolarizer, L, attached to the carbon, and which receives the contents of the zinc cylinder upon inverting the same.

Outside the carbon C, and molded to it, is a dry pressed generating depolarizer of secret materials and preparation, G, contained in a linen bag, and carrying glass insulators on its outside surface, around which is placed the large, heavy zinc cylinder, H.

The outside metal case, A, is insulated from the zinc cylinder, H, preventing any

pass away through absorbent cotton or sawdust, P, and glass vents, as shown. N and O show the positive and negative terminals, and R shows the connection between the zinc cylinder and binding post.

The paste in the Hydra cell is so nearly dry when it leaves the factory that the makers say that absolutely no internal short circuit can take place, and no current or value is lost until the terminals are connected to perform actual work. Then instead of running down rapidly the Hydra is recuperated while in use as the stored, moist electrolyte is brought to the relief of the decomposing paste, keeping it permanently humid.



electrical connection, so that the finished batteries may be in contact without loss of energy or waste by atmospheric influence.

The carbon cylinder, C, the zinc cylinders, H and L, absorbent paste, E, and the depolarizer, G, are all sealed at the bottom of the cell by the cement composition, K and M, and the inside zinc is electrically connected with the outside zinc cylinder by lead, flexible, insulated strips, as shown.

The gases resulting from decomposition

### Dow's Latest Coils

The new 88 battery just put out by the Dow Portable Electric Co., of Boston is new to the automobile trade, the principal features claimed being economy and long life. It consists of two sets of four cells, each set connected in series and is, practically two No. 44 batteries in one case. Each cell averages  $1\frac{1}{2}$  volts and 10 to 12 amperes current. This gives, in four cells, six volts, 10 to 12 amperes current, sufficient for any form of motor using jump spark ignition.

One set of cells can be used, without drawing on the second set, until the current is reduced to three amperes, after which the second set may be used separately until that series is also reduced to three amperes. Then the two sets, a total of eight cells, may be banked together thus raising the current to six amperes which will provide current for a considerable amount of work and give good service until the current in the whole battery is reduced to three.

The Dow company has also put out a new combination coil and battery for motor cycles which is neat, compact and efficient. The battery is furnished in either three or four cells, the latter fitting into a tubular case under which the coil is hung. The battery case is nickel-plated as are the bands carrying the coil, while the latter is put up in an indestructible fiber case.

Full information can be obtained and goods supplied from any of the com-

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pany's depots. The addresses are given in the advertisement which will be found on another page.

### The Rider Boiler

A new boiler for which great claims are made by the manufacturers has recently been placed on the market by the Rider Boiler Co., of 131 Liberty street, New York. It is an upright water tube boiler of unique shape, constructed of a cold drawn steel shell with removable upper crown sheet. The lower crown is tapped and into the holes are screwed the plugs which contain the generating tubes. A stay bolt passes from each plug to the upper crown sheet.

The tubes are of copper or steel as desired, and are expanded in a steel or brass plug. Each of the tubes is U-shaped, one end flush with the lower crown sheet below the water level and the other end above the water level. A thin outer casing is affixed to the boiler-shell by means of cleats. This acts as a support for the boiler and forms a combustion chamber with chimney for the heat and gases to escape around the steam shell.

A shield dome of copper is placed within the steam shell just above the long ends of the tubes with sufficient space for the steam to pass around its edge. When the water and steam is shot out of the long ends of the tubes the water strikes the shield dome and is precipitated back in the main body while the steam passes

around the shield to the space above.

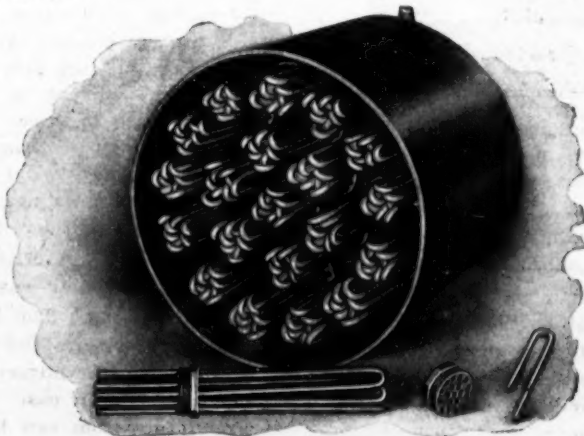
Any one of the tube plugs can be removed with an ordinary wrench without removing the boiler from the wagon. A perfect circulation is claimed for the boiler, and as evidence of this the company states that lead shot in the shorter ends of the generating tubes will be thrown out of the longer ends, showing that formation of scale is impossible.

The company has arranged an ingenious contrivance to illustrate the action of the boiler, and it is at present being shown at the Buffalo Exposition. It consists of a Rider boiler constructed of glass and in actual operation, running an engine of the type usually used in steam automobile. The circulation of the water can be plainly seen.

### Primary Battery Phenomenon

Harry S. Amwake, of Philadelphia, says he has perfected a primary battery of extraordinary capacity. The statements attributed to him in comparing his battery with others, however, do not inspire confidence in his invention. For instance, he states that the present cost of charging a storage battery is \$2, while his can be made, to give the same energy, for 35 cents. Here are some of Mr. Amwake's claims:

"My battery is particularly valuable for automobile purposes, and causes no delay as no recharging is necessary. The addi-



THE RIDER COMBUSTION CHAMBER.

## INFORMATION FOR BUYERS.

tion of a patented solution, readily made, is all that is required.

"A recent automobile test, conducted by expert electricians from New York and Philadelphia, thoroughly demonstrated the advantage of my battery over the storage battery. The respective qualities of the two batteries are indicated by the following table:

Storage Battery.	Amwake Battery.
468..... pounds .....	320
5..... horsepower .....	27
36..... cells .....	40
76..... volts .....	92
Size, 26x27x10 inches.	

"At the end of the trial the storage batteries were practically exhausted, while my battery appeared fresh and vigorous. The storage battery weighs 59 pounds per horsepower, while the Amwake will weigh only 12 pounds to the horsepower.

"The cell as now constructed is 10 inches high, four long and three wide, and weighs 8 pounds when charged. The cell will generate more than 25 per cent more than any other battery on the market.

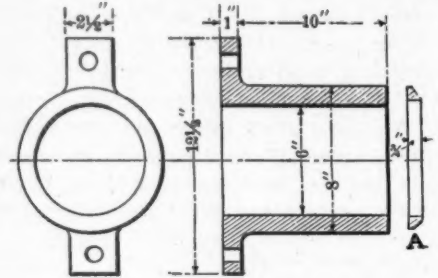
"The cells include an outer shell of leather, into which a carbon shell provided with a terminal is fitted. For stationary purposes this alone suffices. In an automobile an extra amount of energy is evolved by using another carbon shell and a composite plate of zinc and aluminum. By connecting the latter with the innermost carbon box the internal resistance of the cell is reduced and the current's strength is increased from four to five times."



### Stock for Piston Rings

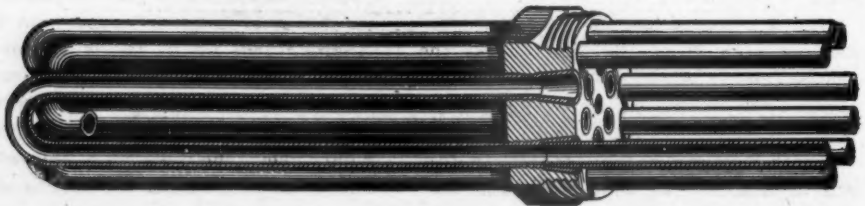
The other day I saw the boys in the shop, says a writer to that excellent journal, the American Machinist, wrestling with the problem of piston rings, trying to get them perfectly true, without any flat spots. It seems that at every place

where a clamp was fastened, the ring would show a flat spot when taken out of the lathe. That brought to my mind a case of that kind that happened some years ago, when I worked at the lathe, including the trouble we had at first, and



the remedy which was found only after a good deal of cutting and trying.

A lot of piston rings were to be made, and for stock to make them from, we had some castings made, like sketch, with two wings or ears to strap them to the face plate. The castings arrived and, after being pickled and cleaned, were turned over to me to make the rings from. I strapped the first one on very carefully with little pieces of pasteboard, so they would not spring. Then, after roughing them off, inside and out, right up to the ears almost, I started to finish and cut off the first ring, as shown at A. Right here is where the trouble commenced. After the ring was cut off, I found it to be .02 inch flat; that is, the diameter across the ring opposite the two ears was found to be that amount smaller than the opposite diameter, although it had been calipered repeatedly while in the lathe, and found to be perfectly true. I tried another ring, and another, but the nearer I got to the face-plate the worse they seemed to get. The next casting I faced off nice and true, thinking that would fix it, but found little or no differ-



THE RIDER GENERATING TUBES.



## INFORMATION FOR BUYERS.

ence. Next we had castings made with four ears set at right angles, and with the rear end faced off carefully. The only difference that made was to give us four flat spots instead of two. So finally we did what we ought to have done in the first place, namely, had the castings made with a flange all around, and that settled it. After that we had no trouble; the rings came out nice and true.

Now, it seemed almost impossible that the pressure of the clamp on the ear of the casting could be felt and affect the diameter of the rings through the whole length of the cylinder, 10 or 11 inches. I have not been all over the world yet, and it is very likely that some of your readers have been through all this and know all about it, but it may reach some fellow who doesn't know, and then the mission of this little sketch will have been accomplished.



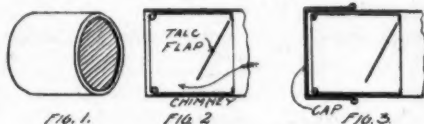
### Prevents Blowing Back

Augustus H. Cook, of London, offers a suggestion which is characterized as a complete cure for blowing back of the burners in steam vehicles. A short metal tube, about three inches in length and four inches in diameter, slides into the chimney, says Mr. Cook. It carries a flange a quarter of an inch deep at its inner end, to which a circular disk of talc, surrounded by a light metal rim, is attached by a hinge of wire. It is hung in such a way that it will readily open outward, allowing free exit to the hot air from the chimney, but closes instantly with the slightest puff of air from outside. This metal tube or collar fits tightly within the chimney, and is of such depth that when the talc valve is open to the greatest extent possible it is completely protected from the wind by the sides of the tube.

Figure 1 represents the tube and talc flap as seen from the inner side, the shaded circle being the valve resting against the flange, as when closed by a puff of wind.

Figure 2 shows section of tube within end of chimney, showing collar and talc flap opening outward to allow hot air to escape.

Figure 3, also in section, shows valve closed against flange and a metal cap fitted closely over end of chimney. This resembles the circular lid of an ordinary metal tube or box. If this cap is fitted on each end of the chimney the moment the fire is turned out, the hot air from



the fire-box is unable to escape, and it will be possible to leave the vehicle for three quarters of an hour without attention, and then to light up without the need of the torch. Otherwise, it will be necessary to return in a quarter of an hour or 20 minutes.

Mr. Cook had a couple of these talc flaps fitted a month ago just as he was leaving for a tour. He experienced high winds, but although he forgot to take any extra asbestos for his fire-box, he did not once suffer from blowing back during an eight days' tour, and it has ceased to trouble ever since.



### A Canvas Radiator

Charles Binks, who has been for many years in the English cycle trade and is now engaged in the manufacture of automobiles, has hit upon the plan of using canvas hose instead of the usual metal tubes for radiating purposes. Explaining the properties of his device, he says: The canvas tubes sweat slightly, though no water escapes, but they keep moist on the outside, and the air striking against this moisture causes it to become intensely cold. Anyone in doubt about this system can easily satisfy himself by getting a piece of the canvas tube, which is specially made, and a piece of metal tube and filling them with boiling water and hanging them up in the wind and sun, and 10 minutes afterwards the temperature in the canvas tubes would be found to be 15 to 20 degrees lower than in the metal tube. The velocity of an ordinary wind is about 12 miles an hour, and take the ordinary speed of a motor vehicle at 15 miles, a very considerable wind will

## INFORMATION FOR BUYERS.

always be observed blowing on the tubes.

When this system is applied to steam vehicles the exhaust is turned in at one end and an air-pump fitted to the other, and the vacuum so obtained can be used for increasing the power of the engine. Of course, in this case the canvas tubes are lined with coils of brass wire to prevent them from collapsing. The canvas tubes are fitted to metal unions on each side of the radiator, and the joint is effected either by lashing with copper wire or with small clips, which tighten around the canvas tubes by means of a screw. The makers claim that the canvas tubes will last, even if they are scrubbed every day, for several years, but as they can be renewed for a nominal sum this is not very serious. Provision is made for the taking up of any sag which may occur in the center of the tube. It will be understood that these radiators are very light and are easily cleaned.

Anyone interested in the Binks plan may try the experiment at trifling cost by purchasing a length of canvas hose, as used in the fire departments and placing inside of it a piece of brass spring.

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### The Mobile Factory

If the United States had been searched all over no more picturesque or historical spot could have been found for the factory of the Mobile Company of America,

which is situated at Tarrytown, N. Y., the exact location of the factory being Phillipse Manor.

The factory is a long, three-story brick building, and there is ample accommodation for the large business transacted there in the production of Mobile steam carriages. The end of the factory, next to the New York Central R. R. depot, and only a stone's throw from it, is incomplete and looks as if the masons had gone on strike just as the work was about to be finished. C. H. Elmer, an assistant to Captain Foote, the general manager, in reply to a question why it was left in that unfinished state said: "Some change of plan in Mr. Walker's mind was undoubtedly the cause of it, but I understand that a large addition will be added to the incompleting end of the factory."

At the New York end of the factory the water of the Hudson river washes the foundation of the factory, and a hundred yards away looms up an imposing government lighthouse, serving to warn mariners of a danger point.

The grounds owned by the company embrace several hundred acres, including a park of beautiful trees. An old residence serves as a club for the office employees, who have formed the Mobile Club. A fierce gale had ragged when the writer called there, and had played havoc with the smaller trees, but the work of a



THE FACTORY OF THE MOBILE CO. OF AMERICA.

## INFORMATION FOR BUYERS.

forester will soon put that in good shape and the grounds can easily be made most attractive to visitors, who are always looked after by the Mobile staff.

Near the factory is Sleepy Hollow, made famous in story by Washington Irving. It was at this point the father of our country talked business with King George's men and the battle of Tarrytown Heights was fought. John Brisben Walker might have searched the country without finding as graceful a setting for his factory. The smiling Hudson stretches itself at the side of the building across to the Jersey shore. To turn, for a moment, from the sublime to the practical, it may be noted that if the Mobile people would put an extensive sign on the summit of the factory, it would be seen by millions passing on the Hudson boats and the New York Central trains.

Going back to the factory, the writer was conducted by Mr. Elmer, a hearty young Columbia graduate, through the departments. The utmost care is shown by the makers and assemblers of the various parts which comprise the finished Mobile. A staff of testing men are kept at the factory and as soon as a vehicle is finished a chauffeur takes it in hand and puts it through its paces in the park and on the roads surrounding Philipse Manor. Not a vehicle goes out unless it has passed through the hands of a number of inspectors and the testing or trial men. The capacity of the factory, at present, is nearly 10 vehicles a day. The story told last year and again this year, that the company has hundreds of finished and unsold vehicles in the factory is absolutely untrue. A search from the basement to the roof failed to show more than 75, a majority of which were being rushed through for immediate shipment.

The foundation of the Tarrytown plant was laid with a view to an increase of capacity, just as was the case with Mr. Walker's great building at Irvington-on-the-Hudson, the home of his Cosmopolitan magazine.

### The Automobile Blue Book

New York, July 8.—The Official Automobile Blue Book Co. will issue its book of towns, maps and repair and supply

stations about August 1. This is a part of the scheme first announced exclusively in Motor Age to establish chains and circuits of supply and repair stations between and around the principal cities. The Columbia Lubricants Co., 22 Burling Slip, is the originator, but this factor of the scheme has become so important that a separate company was formed to promote it and get out the book.

Several weeks ago the originator of the plan told the Motor Age that already, through the extensive advertising and publicity given it mainly through this journal, over 1,200 stations had already been secured. Seventy tours are described in the first edition; for the blue book will be amended and added to from time to time as the circuit of stations is enlarged. Many road maps of sections, with smaller maps of particular districts, will be introduced in it.

### The World on Mungers

New York, July 6.—The entire automobile delivery outfit of the New York World is to be fitted with Munger vehicle tires to the exclusion of all others. This newspaper has been engaged for several months in experimenting with the various types and has finally selected the Munger as the most suitable for its purposes. M. J. Dobler of the Munger Vehicle Tire Co., who engineered the deal, naturally feels elated at the success of his tires on their merits, backed by the effectiveness of his persuasive demonstration.

### DeDions Among Boston People

Boston, Mass., July 8.—De Dion Motor-ettes are selling well. P. C. Lewis, manager for the De Dion people here, has just returned from Brooklyn, where he placed orders for nine. Lewis reports business good and says he expects to get a new store about August 15, after which date he will keep a good stock on hand for immediate delivery. Among those in and around Boston who have recently placed orders for motorettes are: E. C. Byam, Dr. George N. Cushman, C. W. Willey, W. H. Thayer and I. P. Smith of Boston; P. W. Livermore and

## INFORMATION FOR BUYERS.

Austin Grey of Harvard College; F. W. Russell, New Bedford, Mass.; F. L. Barrows, Middleboro, Mass.; William J. Hoyt, Manchester, N. H.; C. N. Kimball, Winthrop, Mass.; George L. Batchelder, Marblehead, Mass.; H. F. Currier, Boston, Mass.

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### Columbias Among Royalty

The City & Suburban Electric Carriage Co., of London, which represents the Electric Vehicle Co. in that city, has written the home office a letter in which it says: "The queen, who has been using one of your mark XII Columbia Victorias, which was supplied by us, for the last 12 months, is extremely pleased with it. We were granted the privilege of showing it at the automobile exhibition last month, where it attracted considerable attention. We are getting the vehicles placed with the best people, such as the Earl and Countess de Grey, the Countess of Gosford, Baron Alfred de Rothschild, Baron de Meyer, and others, and this is popularizing the vehicle in the fashionable world."

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### Adequate Lubrication

A correspondent calls attention to the fact that an immense amount of trouble is caused by improper lubrication and details his own experience. He bought a two and a quarter horsepower DeDion motor and found, after a couple of months, that its power diminished perceptibly. He had been buying lubricating oil from a house which he considered re-

putable and which recommended the oil supplied him for the work in hand. Finally, by chance, he tried some oil prepared especially for the purpose and now his machine runs with ease up hills which it previously would not touch. The correspondent argues that there may be a difference of 25 per cent due to improper lubricating oil.

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The Willoughby-Owen Co., of Utica, N. Y., is working on an order for 125 bodies for a maker of gasoline vehicles, and is said to have just secured an order for \$20,000 worth of goods from a New York company.

The American Bicycle Co. has leased one of its Hartford buildings, part of which is occupied by the Electric Vehicle Co., to the Underwood Typewriter Mfg. Co., formerly of Bayonne, N. J.

H. C. Meckendorn, a Philadelphia inventor, tells us that he is about ready with a motor to do away with all overhead shafting and apply power direct to the machine tools.

The Boyer Manufacturing Co., of Harrison, N. J., makes wood specialties, including bodies. Its selling agent is Roger Ryman, Lawyers building, Newark.

The Simplex Motor Vehicle Co., of Danvers, Mass., is sending out something original and advantageous in a motor that it is placing on its vehicles.

The Knox Automobile Co. is now producing a light delivery van which it sells at \$1,000. It will be in a position to supply in numbers in about two months.







## FROM CORRESPONDENTS



Chicago, June 29.—To the Editor.—The extraordinary speed lately attained by gasoline-propelled automobiles leads one to wonder whether gasoline has been given that careful attention by manufacturers of power apparatus generally to which it is entitled and whether it will not, for a time, prove the most economical form of power of which we have knowledge.

Steam, gasoline and electricity were known to exist before the time of Christ. No attempt was made, in those early days to run automobiles or raise flying machines with the power of either of them, but the ancients realized that it was possible to get a little power out of steam and made fountains and other simple things to operate by its aid.

In successful commercial use, the steam engine has been known for nearly three centuries and 150 years have elapsed since some of the devices still in use were first applied.

Electricity was first utilized for power, but on the most infinitesimal scale, about 80 years ago. No man has yet succeeded in constructing an apparatus which will permit the generation of current by apparatus of convenient size; of storing it without the use of cumbersome apparatus, or of reducing its expense to anywhere near the level of other powers. Some people will use it, but before it can be generally adopted the relation of power to cost must be considered. It would not pay to spend twice as much money to transport a cargo as was necessary unless in so doing there were a saving of more than enough in some other direction to make good the difference.

Compared with these veterans the gasoline engine is a baby. As long ago as 1860 hot air and gas engines were used to

a limited extent, but for such purposes as to be quite outside the pale of commercialism. It was not until 1876 that Otto showed the world how to make a gas engine which would be of commercial use and which possessed nearly all the essential features of the engines in use to-day. He did this in spite of the fact that there was no way at that time of obtaining anything like the same advantages in that line which are possessed by the experimenter of to-day.

Thirteen years hence we shall celebrate the 100th anniversary of Stephenson's completion and trial of his first locomotive. He continued at work along the same line for many years and eventually produced the forerunner of the locomotives we use to-day.

The steam engine, in short, has been in course of development ten times as long as the gasoline motor. There is no accurate record of the first attempt to apply a gasoline motor to a vehicle, so that comparison of that event with Stephenson's production of the locomotive is impossible. It may be asserted, however, that the gasoline motor was not used in connection with a vehicle with any degree of success until within a decade. Hence it appears that the steam engine must have reached a point nearer its ultimate maximum efficiency than the gasoline motor and that the latter having shown, in a few years, that it possesses qualities which it took centuries to discover in the steam engine, is entitled to the most serious consideration.

We Americans are apt to point with pride to the achievements of our locomotives. It is certainly a fact that they have been introduced in nearly all parts of the civilized world. Our makers are able to produce them faster than the

## FROM CORRESPONDENTS.

makers of other countries and at lower cost. There is some doubt as to the relative efficiency of British and American locomotives and the question has lately been argued at some length by men of ability. But of what has the maker of a locomotive to boast in comparison to the maker of the modern automobile?

Fournier, in the Paris-Bordeaux race, is said to have covered a part of the route at the rate of 80 miles an hour. There is little reason to doubt it. But suppose, for the sake of argument, we credit him with only 60 miles.

The fastest train in this country, and one of the fastest in the world, travels from New York to Buffalo, a distance of 440 miles, at the rate of 55 miles an hour, stops included. Its actual speed exceeds 60 miles.

The roads of France are among the best in the world. They are even better than the roads of Great Britain of which we hear so much. But how is it possible to compare them with steel rails, laid with all the skill resulting from 50 years of experience? The way of the Empire State express has been smoothed for it by every conceivable appliance. The automobile has to take things as they come, stopping for curves and crossings and running around and out of the way of a hundred and one obstructions.

The locomotive makes its record as a result of experience of scores of years. The automobile gets there with an experience of scarcely as many months and with a power of which we have had experience only during a very few years.

The maker of the locomotive will tell us, of course, that his engine is required to pull a heavy train and is built with that object in view rather than for enormous speed. That is true, of course, but at how much greater speed would it be possible for a locomotive, without a load, to travel from Paris to Bordeaux?

The question which this subject suggests is the possibility of an improved locomotive using gasoline instead of steam as the power. The speed of steam locomotives has increased, perhaps 20 per cent in the last 20 years. The gasoline vehicle travels 10 times as fast now as it did 10 years ago.

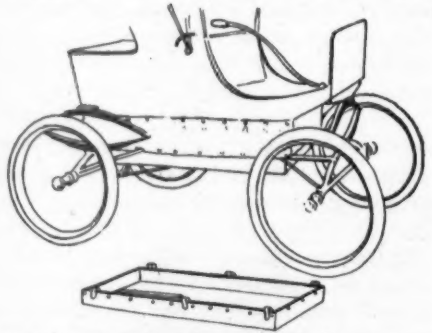
One of the European governments has

lately ordered a car to run on one of the railroads, to be propelled by a gasoline motor. Its capacity is to be 40 miles an hour and it will carry about 60 passengers and a supply of fuel for ten hours. The experiment will be worth watching. The load it will carry will be infinitesimal in comparison with that of a steam locomotive. The cost of operation and other details will be beyond ascertaining for a year or more. In the meantime is it not possible that some American railroad will try the same experiment?—Yours, etc., C. W. S.

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### Successful Wind Shield

Pratt, Kas., July 1.—To the Editor:—We have a steam machine, and although we have had few troubles, we did have one which should be looked after more thoroughly by the manufacturer. Kansas, as you know, especially this section of it, is subject to strong winds, both in winter and summer. Considerable trouble was experienced in using our machine in anything like a strong wind. The fire might



be turned to its fullest extent and sometimes, even if it did not blow out, which it often did, it would fail to generate steam enough. After trying different protections for the burner we made a pan, shaped like the illustration, which we bolted to the frame of the machine and from the side we ran curtains clear around, fastening them to the bed and pan with buggy curtain buttons. This has given us better satisfaction than any other wind protection. If any automobile gives its owner this trouble the protection just described will benefit the fire greatly. Manufacturers should take a little more care in making their machines so

## FROM CORRESPONDENTS

steam may be kept up in the windiest of weather. When they do steam vehicles will be a success in this or any other windy sections of the country, but if they do not the gasoline and electric will lead, as it is very annoying to be stopping to raise steam.—Yours, etc., Jas. G. Blaine.

✂

### A Hint to Dealers

Paris, Texas, June 30.—To the Editor.—I feel that I have been selfish to have been in possession of a good scheme for making the cycle business better and not having told all the other boys about it sooner. The fact is, I have been busy in other directions.

Paris is a town of about 16,000 people, with about half of its roads six inches deep in sand. The thermometer is not particular where it stops, though I believe it has a maximum of 116 degrees in the shade. Notwithstanding these conditions, our bicycle rentals are paying us a net profit of \$85 a month, beside the indirect benefits we derive from this branch of our business. The facts in connection with the matter are as follows:

At one time we rented only such old machines as we got in trade, and I must admit that, as a rule, they were a disreputable looking lot. I know that this system is general, even in large cities. The machines I rented were not 1, 2, 3 in grade when they were new, and by the time I got hold of them the tires had long since become dilapidated.

One day I hired a horse and buggy, but soon returned it to the barn because it was such an old and played-out looking affair. That set me thinking that the man who wanted to rent a cycle had just as much right to expect a good-looking one as I had to expect a good horse and buggy. So to start with we ordered 10 good bicycles to put in our rental stock. Now we keep 20 and try to keep 25, but sales are so free that it keeps us buying all the time to keep the stock up. We find that the sale of machines that have been in use three or four weeks, at a slight reduction, is three times as good as in new ones, and

so we always manage to keep a presentable lot of bicycles to rent.

The outcome of all this is that we are selling three times as many cycles. We do not average more than three slight accidents per week, and these we are able to repair at nominal cost. After the machines have been rented a few weeks we sell them at a slight reduction. They bring us, including the rent and actual profit we realize on the sale, 15 per cent more profit than if we had sold them outright to begin with. They also help us to convince people that the machines are bargains and so must be sold for cash. All this, to say nothing of the way the plan has encouraged the cycle trade generally.

The machines with which we have been most successful have been model 83 Cleveland and model 86 Imperial, which, not being this season's machines, we are able to buy at a bargain.—Yours, etc., E. K. Baker.

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### Mr. Apperson Complains

Kokomo, Ind., July 6.—To the Editor.—We should like to ask you how it comes you published the article from Mr. A. B. Gardner, of Dowagiac, Mich. Do you think it is to the general interest of the automobile industry to publish an article of this kind? We should like to ask if Mr. Gardner paid for this article at the regular rates, or if it is an idea you have that articles of this kind are a benefit to the manufacture of automobiles.—Yours, etc., The Haynes-Apperson Company, by Elmer Apperson.

(In the letter referred to Mr. Gardner complained that he had been unable to successfully operate his vehicle, which was of Haynes-Apperson make. Appended thereto was an editorial note to the effect that his experience was not that of a majority of owners of this particular make, most of whom had found that it gave satisfaction. The columns of Motor Age are open to the reasonable communications of all correspondents. Having given others opportunities to express their opinions it would not have been just to refuse the same courtesy to Mr. Gardner. If Mr. Apperson has any reply to make, Motor Age is open to him

## FROM CORRESPONDENTS.

and he will not be requested to pay for the article "at the regular rates" or at any other rate.—Ed.)

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### Exercise Patience

Burlington, Ia., June 26.—To the Editor.—My experience in making and running automobiles is that there is but one thing essential to success and that is patience. Remember the old adage: "If at first you don't succeed," etc.

We have had fairly good success with our motors and attribute it to patience and perseverance.—Yours, etc., Burg Wagon Co., C. E. Burg, Manager.

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### Electric Satisfactory

Winnetka, Ill., July 6.—To the Editor.—It pleases me to be able to report that in 18 months' or more of constant service, I have yet the first thing to get out of order and the first difficulty of any kind to overcome. My vehicle is an electric stanhope. You may use my name in this connection if you so desire.—Otto V. Bachelie.

✍

### American Parts Abroad

London, June 19.—To the Editor.—I am convinced that many parts of vehicles which give good service in your country will not do here. You may remember that we had the same trouble with American cycles.

I have lately had experience with American parts of automobiles which were recommended by people who have used them in the United States. First of all do not recommend Morgan & Wright tires for our roads. They won't do. Then I bought a complete set of parts and made a vehicle. The brackets carrying the countershaft cracked and broke into a number of pieces. The clutches ground to powder, the chains fell off and the whole thing was out of line. The reversing gear was lovely on paper and fair to look upon but required remaking by Thorneycroft, cast iron being quite un-

suitable to hang together. We lost some of it on the road.

I write you this because, having been through the same thing in the cycle trade, I know how American houses are injured by it. I want to do business with America, and am doing it, in motor bicycles, but do not want to go to the trouble and expense of importing stuff which will prove useless when it arrives. American makers will do well to remember that we want the best goods.

The motor, which came with the outfit referred to has done good service. I cannot say the same for a single other part.—Yours, etc., K.

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### Remington Offers Assistance

Utica, N. Y., July 8.—To the Editor.—We are repeatedly asked if we are going to take part in the coming long distance automobile test or endurance run. We are entirely too busy manufacturing motors and vehicles to fill our orders to permit us to take any of our production for this endurance test, though we desire to assist to make the same a success in so far as we can, and as Utica will be one of the principal stopping places, we would like it known to the trade that our entire plant will be placed at the disposal of any contestant who finds himself in trouble upon his arrival at Utica.—Yours, etc., Remington Automobile & Motor Co., James S. Holmes, Jr., General Manager.

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### An Agent's Enthusiasm

Louisville, Ky., July 6.—To the Editor. I have great trouble of daily recurrence and shall be pleased to have some of your readers suggest a remedy.

Trouble: In fine weather, no time to ride, and all my friends angry because the long promised drive is so long delayed.

Diagnosis: Extraordinary enthusiasm, superinduced, in my case, by a Mobile.

When your business interferes with pleasure—well?—Yours, etc., Phillip E. Allison.



# CONSTRUCTION OF A BICYCLE MOTOR

## PART THREE

In figure 10 are shown a top view, side elevation and bottom view of the cylinder; bottom view and side elevation of piston; plan or top view and side sectional elevation of cylinder cover and explosion chamber, and detail of piston rings.

The cylinder and piston should have nicely made patterns, and the dimensions

given in the drawing should be followed closely. The best quality of cast-iron should be used for these castings, both for strength and wearing quality, aside from the fact that a smooth finish is required in the bore of the cylinder and on the outside of the piston.

To machine the cylinder properly, it should be held in the chuck in the lathe

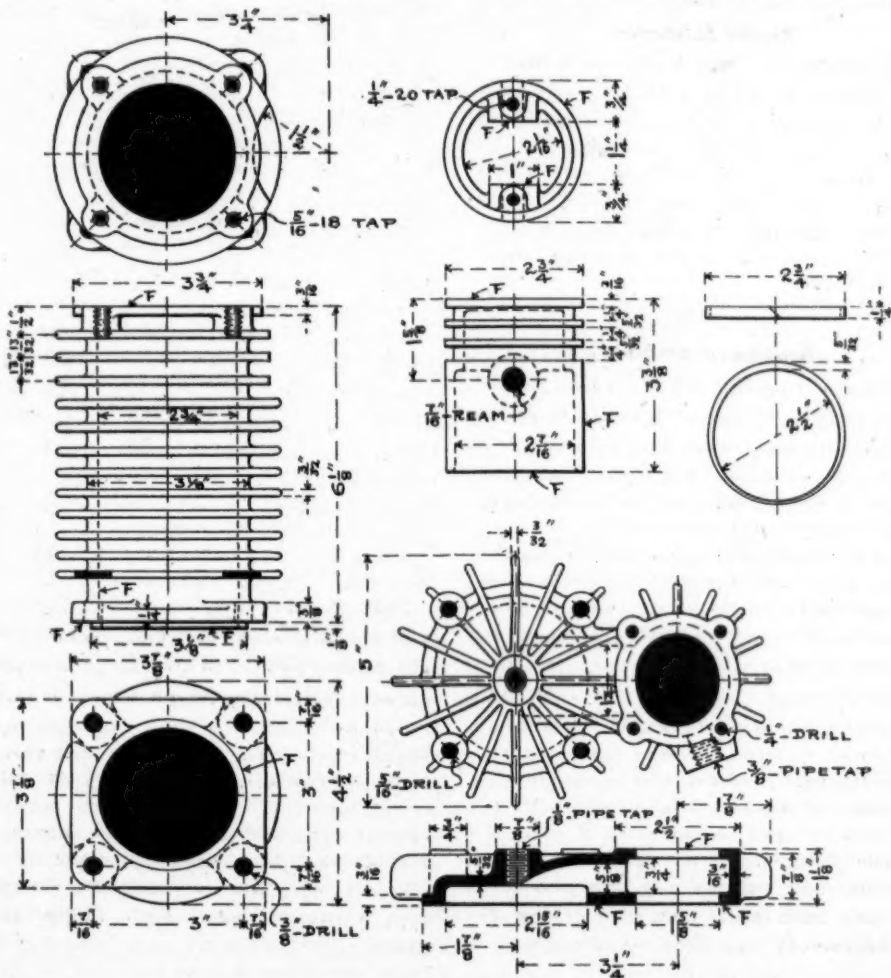


FIGURE 10.

PISTON RINGS.  
Three, Cast Iron.

CYLINDER, PISTON & CYLINDER COVER.  
One Each, Cast Iron.

## CONSTRUCTION OF A BICYCLE MOTOR.

by the upper or cover end. It should be carefully trued up and then bored to size, and the flange and shoulder faced off to proper size. After this is done, put the cylinder on a mandrel and finish the upper or cover end.

Do not attempt to get a high finish or polish in the bore of the cylinder, by using emery or emery-cloth. This will get the cylinder bore out of true, and result in a poor job. A number of light cuts should be taken until the cylinder bore is almost the correct size, then take a light cut, with a small, round-nosed tool, newly ground, and run through for the finishing cut. The piston can be held in the lathe chuck, with the chuck jaws reversed, on the inside of the open end, using the dead center of the lathe against the closed end of the piston. A small boss should be put on the piston pattern on this end, so that a center drill may be used, and to prevent any chance of a hole in the closed end of the piston being drilled through to the inside.

The detail of the piston rings is clearly shown in figure 10. They should be made from a tough, springy quality of cast-iron. A casting should be made which will finish outside three inches in diameter, and it should have two lugs on one end, with slots to fasten it to the face-plate of the lathe, and also to set it eccentric after turning up the outside to the above-mentioned diameter.

After the rings have been turned up and cut off, they should be cut open and a piece sawed out at an angle of 45 degrees, as shown on the drawing, sufficient so that when the ring is closed it will allow about one thirty-second of an inch for a finishing cut. The ends should then be soldered together inside the ring with a small strip of tin, and put into a clamp jig in the lathe and finished to size. This must not be neglected if a perfect fit is required. Do not make the mistake of so many builders, and simply turn the rings a trifle larger than the cylinder-bore and then cut them if you expect to have a fit. Do not omit the turning of the rings eccentric, as shown. This is important, if the rings are to have uniform pressure all around the cylinder wall, for this can-

not be obtained with rings of uniform thickness throughout.

The cylinder cover should have a well-made pattern, and, as before stated, the casting should be of the best grade of cast-iron. The lower face of the cylinder cover should be carefully finished in the shaper, and then may be clamped to the lathe face-plate with the explosion chamber central, and the upper face and hole in same bored out to dimensions given on drawing.

A one-eighth inch pipe tap is shown in this cylinder cover. This is for a cock for the purpose of releasing or reducing the compression in starting the motor. The three-eighths inch pipe tap in the side of the explosion chamber is set at a slight angle, as shown, so as to clear the inlet valve admission pipe, and yet not allow the sparking plug to project too far.

Figure 11 shows the details of the inlet and exhaust valve chambers and the details of the valves.

The admission valve chamber can be held in the chuck by the end with the cap in, and the face, shoulder and valve-seat, etc., finished. It may then be reversed and carefully trued up and the  $1\frac{1}{8}$ -12 thread cut for the cap, and end faced off. The cap may be made of a light brass casting and care should be taken to have the hole inside the same large enough to clear the spring cap on the inlet valve, which projects up inside the same, as will be seen by reference to figure 2.

The exhaust valve chamber only requires one setting in the chuck to finish the lathe work upon it. The inlet and exhaust valves should be made of high grade annealed tool steel, and forgings should be made for them. The inlet valve has a combined spring cap and nut, this being necessary on account of limited space. The exhaust valve has a separate spring cap which is held in place by a 5-16 18 hexagon nut, faced to  $\frac{1}{4}$  inch thickness, as shown. Holes are drilled through stems and nuts for a three-thirty-second inch split-pin or cotter, to keep the nuts from turning and working off the valve-stem.

The end of the exhaust valve-stem is

## CONSTRUCTION OF A BICYCLE MOTOR.

turned down below the thread, so as to form a teat for the plunger rod to act against, and also avoid battering up the end of the threaded portion of the stem. The angle of the valve faces is 45 degrees, the best angle to ensure tight seating of the valves and small amount of wear on the seats.

The inlet and exhaust valve chambers are clamped to the explosion chambers part of the cylinder cover, by means of four  $\frac{1}{4}$ - 20 phillister head screws, which pass through the holes in the flange of the inlet valve chamber, then through the holes in the lugs on the explosion chamber, and screw into the lugs on the flange of the exhaust valve chamber, which are tapped to receive them. This

makes a simple construction and avoids the use of studs and nuts.

After the valve chambers and valves are machined and ready to go together, the valves should be carefully ground to their seats with tripoli and water. Do not use oil and emery, however fine it may be. It takes a little longer to grind the valves to their seats with the tripoli and water, but it makes a better and more lasting job.

The subject of the next article will be the exhaust and ignition operating mechanism, which includes pinion and gear, exhaust and ignition, cam, sleeve and stud, plunger rod and guide, and ignition case and cover.

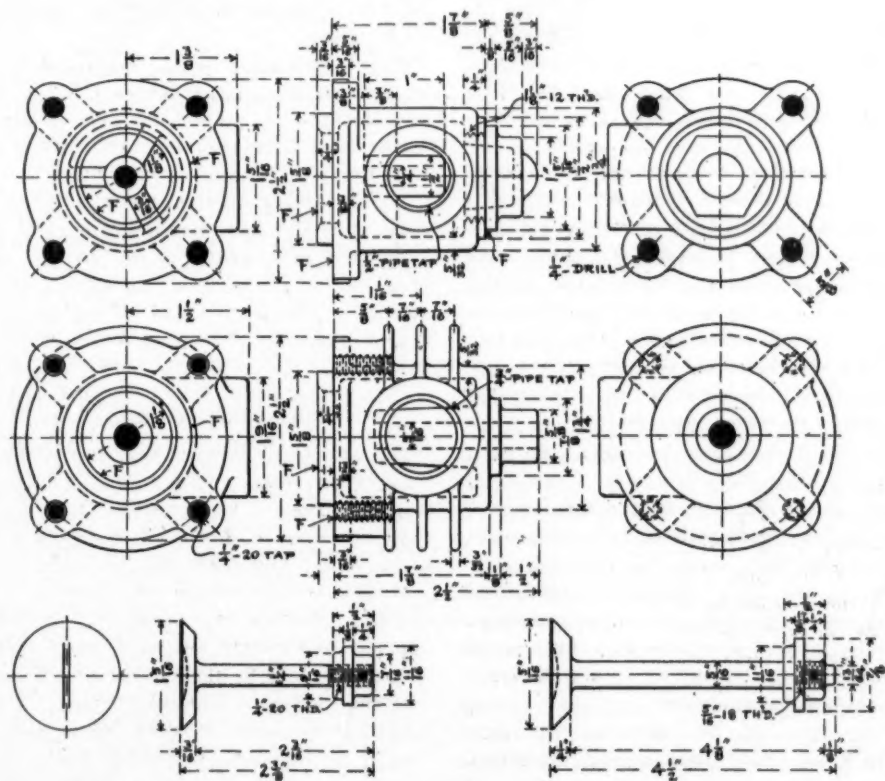


FIGURE 11

**INLET & EXHAUST VALVE CHAMBERS.**  
One Each, Cast Iron.

**INLET AND EXHAUST VALVES.**  
One Each, Steel.



## NEWS OF THE CYCLE TRADE



There was a rousing meeting of the cycle trade protectionists at Buffalo on Saturday.

Heretofore it has been a difficult matter to draw out some of the people who are most deeply interested in the litigation now pending over the bottom bracket patent, but nearly all, seemingly, have at last come to the conclusion that if they desire protection it is high time to get into the band wagon. And so the call for last Saturday's meeting brought out men who had previously considered it desirable to allow others to shoulder the responsibility and the expense.

The fight has been on now for considerably over a year. The men who went into the protective association at the outset have never flinched. There has been need of a great deal of money and the time came when those who had provided it came to the conclusion to talk plainly to the remainder of the trade and to tell them that if they desired to be protected it would be necessary for them to come into the field and contribute to the fund for the defense.

W. H. Dyrenforth, of the firm of Dyrenforth, Dyrenforth & Lee, who has been the most active man in the conduct of the suit, was in attendance to give the gentlemen present the facts as to its present standing and to answer all questions concerning it which could be judiciously answered.

The result of the meeting was that \$10,000 additional was raised then and there and as much more was virtually promised. Some of the people present were unable to pledge their companies until formal action had been taken by directors.

Most of the evidence is now in. The

examination of unwilling witnesses, which has been in progress for some time, will be resumed in New York in a day or two. Many of these witnesses are men at present connected with the A. B. C., and the principal object of the attorney for the defendants is to show that they, before the trust was formed, used bottom brackets with impunity and without thought of payment of royalty to anyone.

The last feature of the evidence will be the examination of experts. This is expected to take place some time in September, so that the case will probably be closed before winter sets in.

The members of the association and their attorneys are thoroughly convinced that they have a good case, but will be prepared, in the event of an adverse decision, to carry the case to the higher courts.



### Desperation in Germany

The German bicycle and automobile makers' association has issued a confidential letter to its members in which they are warned under no consideration to represent American bicycles, either as sole agents or having one or two as samples. Unless the members strictly adhered to these instructions, they were told they would be thrown out of the association without ceremony. One, Mr. Kukulak, it seems, took the representation of an American bicycle firm, and the matter finally came to the knowledge of the association, which without further delay notified Kukulak that he was no longer a member. Among other matters contained in the letter which the association wrote the gentleman there was



## NEWS OF THE INDUSTRY.

the following: "A German retailer should not only have in mind his own benefit, but more especially the benefit of the German industry as a whole, and even if he finds more profit and thinks a foreign bicycle is better and easier to sell to the better class of the people, he should nevertheless have enough courage to try and persuade his customers to buy the German make in preference." Mr. Kukulak did not pay much attention to this notice and continues to sell American bicycles.

This is only one of the cases which has come to the notice of the papers, but from correspondence received in the last few months it is clear that the war against American bicycles and parts is being waged more strongly than ever and that the German association is making every possible effort to induce its members to refuse to handle goods from this country. This is not astonishing. There are in Germany a large number of bicycle factories, several of which manufacture from 40,000 to 50,000 bicycles each year, and it has been estimated that the German output reaches about 1,600,000. A large number from foreign countries, like Belgium, France and England, are imported, but the United States has always had the lead in these importations, and therefore is more strongly opposed than are the other countries.

That German makers, except one or two, are making little profit, is clear from the dividend statistics published every week. While for two or three years the dividends distributed were not less than 8 per cent and as high as 25 per cent, few now pay 2 or 3 per cent, while most of them are losers. The same may be said of a number of tire concerns. The only one which is still ahead is the Continental Gutta Percha Co., of Hanover, which lately paid 25 per cent, while the Brenador Cycle Co. paid 12 per cent.

The Stearns Bicycle Agency will not have to remove the name Stearns from the pedal cranks of 500 of its machines which have been sent out of the city on consignment. The defendants asked that

the injunction be modified so as to permit the use of the words "Stearns Bicycle Agency" on the cranks, as the name was not conspicuous, and the letters only one-sixteenth of an inch high. It appeared that the defendants have about 200 bicycles on consignment at New York and about 100 each at Los Angeles and Portland, Me., and about the same number at other places. The injunction stands as to all other particulars.

The Dunlop company seeks, by legal measures, to prevent the use of the word Dunlop by the Pennsylvania Rubber Co. It is asserted that the manufacturers have been making an inner tube which they have been selling as Dunlop goods. The plaintiffs say that the name has become a trade-mark and ask that the defendant company make amends for its use of it and be restrained from using it hereafter. Affidavits accompanied the statement, showing that the goods have been sold.

W. H. Kitto, who formerly represented the Gormully & Jeffery Mfg. Co. in London and built up one of the most prosperous American cycle agencies in England, has secured the English agency for the Thomas Auto-Bi. He has already interested a great many good men in the trade and the indications are that he will transact a big business. He has twice cabled orders for machines.

J. D. Kahler and Albert Smith, cycle repairers, have been fined at Minneapolis for having thrown tacks on one of the cycle paths. Men who can make business by no better method than this are unfit to be tolerated in any community. A term in jail would be the proper thing for them.

Alexander Schwinn, of Arnold, Schwinn & Co., Chicago, was in Buffalo on Monday visiting the Crosby company. Mr. Schwinn does not seem worried about the future of the bicycle industry. He says that the bicycle is the poor man's carriage and for that reason the demand will always be healthy, as poor men predominate.

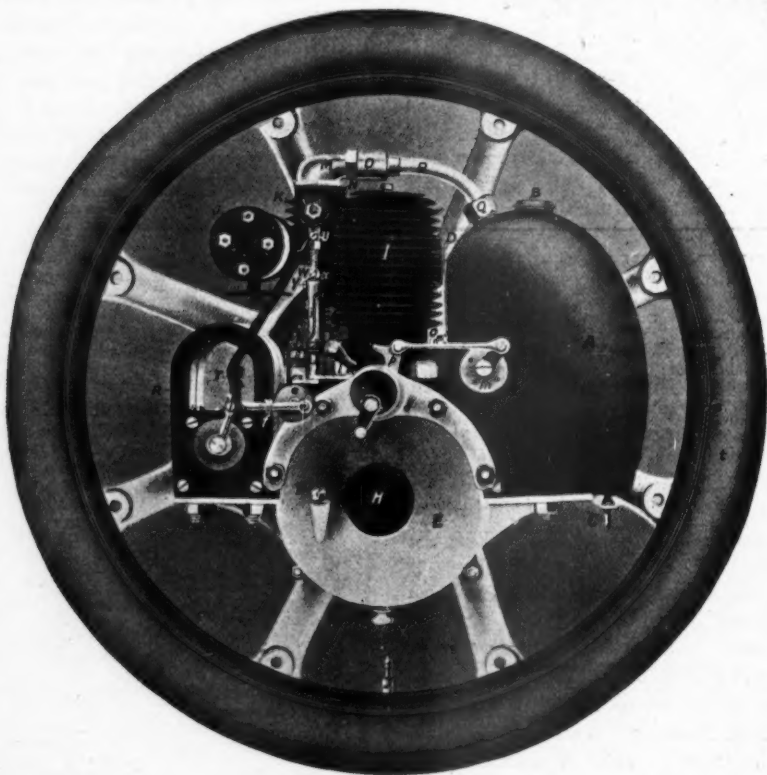
Ehrman & Duke, cycle dealers at Baltimore, have dissolved partnership. The business will be discontinued.

## THE SINGER MOTOR WHEEL

The accompanying illustration, by far the best yet produced of the now famous Singer motor wheel has been reproduced from the Autocar, which also furnishes a number of hints as to its care.

In the first place, assuming that good gasoline be used, the automatic method of carburation should require no attention beyond the occasional running of small quantities of gasoline from the tap C at

detected. The vertical interrupter gear receives its interrupting motion from a cam e, which revolves with a short half-speed shaft, to which the exhaust valve cam is also attached, this latter working the plunger h through the bush and cover g. The contact making action of the interrupter gear, is obtained by means of an S-shaped spring. The main insulation is shown at i, this being a good thickness of



the bottom of the carburetter A. This keeps the carburetter bottom clean, and induces vaporization.

The Simms-Bosch magneto machine R is also automatic, being driven by the motor wheel itself. There are no batteries, no induction coils, or sparking plugs, to worry the rider. There is little or no chance of short circuit, and should such occur its whereabouts can be readily

detected. The regular and intelligent use of lubrication, especially in the crank case, is perhaps the most important matter. Fresh charges are given through the plugged hole F. Used oil must be let out occasionally from the plug G. The valves are so placed as to be easily accessible by removing the dome M, after loosening the connection O. By the same means the

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contacts are exposed. The wheel is gear-driven on the reverse side of the crank case to H, by a pinion which meshes into a large internally-toothed wheel Z1. This is well covered on one side, and arrangements are being made to completely enclose it. Radical changes of atmosphere are met by slightly moving the lever D, but all ordinary variations are allowed for by the method of carburation and the triple valve beneath m, which is connected with the regulating handle at the bar. In the latest patterns D is also regulated by a small lever on the frame or handle-bar, so that no dismount is necessary. By

taking out eight bolts from the holes shown near the ends of the arms, the wheel sides can be removed. Dust can be got out with a small brush or blown out with an inflator, and if the exhaust silencer J be removed the hand can reach all parts that in the ordinary course require cleaning. The magneto can also be removed through the space between the arms of the wheel sides. The wheel can be detached from the frame as easily as an ordinary cycle wheel, and in the event of accident or serious breakdown can be returned to the makers in a box or crate.

## CYCLE RACING AND RECORDS

New York, July 6.—Manhattan Beach led all tracks in its Fourth of July programme. There was racing afternoon and evening, paced races being the leading feature, though the home-coming of Major Taylor and match races between foreigners and Americans were among the events.

Fully 5,000 attended in the afternoon. Elkes made his first appearance since his accident. He had for competitors in the hour paced race McEachern, Linton, Pierce and Hoyt. Elkes proved to be in fine trim, and won by nearly two miles, though McEachern and Linton gave him a good race for 13 miles, when McEachern lost his lead and was quickly lapped. Linton led for three miles and then fell back to fourth place in the next mile. Hoyt had hard luck with his motors. Elkes covered 36 miles 880 yards in the hour, with McEachern second, Pierce third, Linton fourth, and Hoyt fifth.

Major Taylor came direct from the steamer to the track, and received a great ovation. With an 83 geared machine he rode an exhibition mile in 1:46:3-5 behind pace. He complained of having suffered much from sea-sickness, and after his exhibition went direct to his home at Worcester, Mass.

Gascoyne gave a fine exhibition of unpaced riding, beating so good a man as Hadfield by 175 yards in a five mile pursuit race in 11:32. Hurley beat Bardgett in

two straight heats at a third and half mile. Hurley looks to be easily the American amateur champion of 1901. This was Bardgett's last appearance as an amateur.

The 50-mile paced race in the evening had Hoyt, Linton, Pierce, and McEachern for starters, and a rather slim crowd to look on at one of the most ingenious bits of probable crooked work ever seen in a race track in which Hoyt figured as the alleged culprit. He was disqualified, and is now under suspension pending investigation. McEachern led up to the 16th mile, when Hoyt went to the front, and won by a mile from Pierce in 1:32:06 1-5, with McEachern third, and Linton fourth.

The lighting of the track was poor, and the men rode in semi-darkness. Early in the race several of the officials thought they saw a string or wire connecting Hoyt's mouth with the back of Mosher, his rear seat pacemaker. Alfred Reeves, secretary of the board of control, was positive he saw the string. Six of the officials signed a paper declaring Hoyt was being towed. After the race a hole was found in the back of Mosher's sweater, but no search of him was made or if there was no connecting link was found. Hoyt, though he denied the accusation, said he had been towed that way for fun, mile after mile, in 1:32.

Walter Bardgett of Buffalo, who recently received one of Batchelder's polite in-

## SPORT AND PASTIME.

vitations to change his class, made his professional debut in a match race with Lucien Grognet, the French exile, and beat him easily at a third and a half mile.

The money chasing sprinters and the usual big pack of fast amateurs competed at Vailsburg. Fenn confirmed his great ride of last Sunday by again winning, this time from scratch in the world's handicap and competition record time of 10:32 2-5, supplanting McFarland's 10:45, made at this track last year.

Of course Kramer won the half mile open. The order of his prize money pursuers was Fisher, Freeman, Cooper.

There was a big bunch of amateurs at Joe Harrison's diamond meet at Asbury Park, Warren Zurlick winning the open, and riding with credit from scratch in the handicaps.

Amateur meets were also run at West New Brighton, Poughkeepsie and Wappinger's Falls, in all of which there were metropolitan district amateurs.

William McKenzie, Thomas F. Hull and John Christ, 5:30 men, finished in this order in a bunch in the annual Rahway-Elizabeth 25-mile road race. Edgar Van Vilsor, last year's Irvington-Milburn winner, won the time prize, with Charles Monk and J. E. Achord, also scratch men, second and third. His time was 1:00:30, which is close to the American record.

### Kramer's World's Record

Newark, N. J., July 7.—The world's handicap and competitive record-breaking at Vailsburg reached its culmination this afternoon in the breaking of two world's records, McFarland's two-mile professional of 4:08, and G. H. Collett's half-mile amateur of 58 2-5. Frank Kramer won the two-mile professional handicap from scratch in 3:59 4-5, and Marcus L. Hurley scored 58 seconds in a heat of the half-mile amateur handicap. Kramer's performance was without dispute the most marvelous exhibition of sprint riding ever seen on a race track.

There were 27 starters, with McFarland and Kramer on scratch, and Cooper, Collett and Freeman at 30 yards. All were sent off in a single heat.

The Coburn duo on the 210-yard limit,

assisted by Apgar and Gurey, set out as usual to run away with the race. Soon the field was divided into three bunches—the limit men, the middle markers, and the scratch and first mark men. As they reached the mile, McFarland set out to catch the middle markers, and rode so fast with Freeman and Collett that Kramer was actually shaken off. The trio went to the head of the bunch and kept up their terrific drive to the tape. At the bell there were 16 men ahead of Kramer. In and out he rode around the turn, just as Bald did in his great half-mile handicap race at Manhattan, the most brilliant of his career. He caught McFarland and Cooper at the last turn and swept by them into the lead, when the two great riders sat up, actually ridden to a standstill. Kramer kept right on to the tape and won by three yards in 3:59 4-5. Hausman (120), Babcock (150), and Floyd Krebs (150) followed him in this order.

Hurley's world's record was made in the fourth trial heat of the half-mile handicap. The handicapper had extended all the marks further than ever to choke off Hurley's winning streak. He failed to score in the final, however, which went to Saward (35) in 1:01, with Harry Urising (20), second, Billington (10) third. Hurley of course, won the half-mile open. John Redell was second and Billington third. Arthur Ross and W. S. Fenn stopped in the third mile of their 25-mile motor-paced race by reason of rain. Ross was well in the lead.

### Opening of the National Circuit.

New York, July 8.—Madison Square Garden was the scene of the opening of the national sprinting and paced circuits to-night. Floyd McFarland had an easy victory over Tom Linton in the 15-mile paced race, winning as he pleased by four laps of the ten-lap track in 29:33 4-5.

Three series of trials brought Frank Kramer and George Collett together for the final, just as in 1899 they so often met in the open finals in the great amateur races, and they finished in just the order they did that year in the cham-



## SPORT AND PASTIME.

plionship. Kramer went off in the lead and with comparative ease staved off the repeated attempts of Collett to pass him, finally winning by a length and a half in 1:08. In some of the trials and semi-finals the time was very fast, close to a minute flat being scored.

Linton was clearly outpaced and out-ridden by McFarland from the start. Before three miles had been covered the Californian had lapped the Welshman twice. After that he settled down to an easy pace, being satisfied to maintain a half-lap lead. At about ten miles Linton's motor went wrong and he was left stranded. McFarland, as soon as he saw his rival's plight, very courteously rode unpaced until Linton was fixed up again by a fresh motor. This, too, soon went wrong, and the Welshman, after several laps of plucky unpaced riding, during which he was lapped twice, finished the race hooked on the American's rear wheel.

Taylor telegraphed late in the afternoon from Worcester that he was not well enough to appear. He also wrote he would not begin training for two or three weeks. Chairman Batchelder's reply was a wire fining him \$100, and the same fine for every circuit meet he missed. Promoters all along the line had taken national circuit dates on the strength of Major Taylor's appearance, and billed him heavily. The announcement of the fine was received with applause by the 4,000 spectators.

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### On Salt Lake Track

Salt Lake, July 5.—Fully 5,000 people witnessed the racing last evening and the enthusiasm reached fever heat during the five-mile motor match race between the Turville Bros., John Lawson and Oscar Julius. The race called for the best two out of three heats, but the Turvilles won two straight heats, both in driving finishes, the first in 8:10 2-5 and the second in 8:24 4-5.

Harry Gibson, of Cincinnati, and his manager, A. R. Bloomfield, arrived in the city yesterday and immediately took up training quarters at the track. Gib-

son states that the track is the fastest eight-lap ever constructed. While here he will make an attempt to land all the records. The program for July 9 calls for a 15-mile motor paced race between John Chapman and Charlie Turville.

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### The Annual Pullman

The fourteenth annual Pullman road race occurred on July 4. The entries numbered 134, and of these all but about half-a-dozen started. The public interest in the event was not as great as in former years. Time was when tens of thousands lined the boulevards to see the riders go by and when there were four times as many entries. In those days, however, the race was run on Decoration Day, which marked the opening of the season. The prizes were four times as valuable and numerically in about the same proportion. Everybody who was anybody took part in the Pullman road race in some capacity or other.

About the time its founder, Bob Garden, left Chicago for the east, interest in the event commenced to wane and it has never attracted the same amount of enthusiasm since. It never will. The good-fellowship of club life has departed. There is nothing to fill its place. The men who race are known to a few intimate acquaintances, and that is all. There are no popular idols. Cycle racing is a scattered thing, a too common thing to attract the attention of the public or the rider to such an event as the Pullman nowadays.

There are ways and means of conducting a road race and making it popular, of course. But the something must be new and exciting. Motor pacing might do it. Motor bicycles might do it. But the ordinary rider who pedals along much as he does in his everyday traveling has lost his grip as a drawing card.

As usual, in so large a bunch of riders, one managed to fool the handicapper. He was Earl McIntosh, a gentleman who, by a statement of his age on his entry blank, led the official to the belief that he was in the baby class. But he wasn't. He got the limit and could probably have done with a minute or two less.

## SPORT AND PASTIME.

There is no glory in the winning of an event of this character, or, indeed, of any character, with folded arms and other spectacular actions. That is just what this young man did, to the disgust of the spectators at Pullman, who were expecting a race for men.

A gentleman named Blum, who rejoices in the nickname of "Farmer," won the time prize, and deserved it, for he was one of the two scratch men, the nearest bunch being 30 seconds ahead. Flath, the other scratch man, was left behind at 16th street and did not finish in the first 50. Blum won a tandem valued at \$75.

The order of the first 12 men is here given:

	Handicap.	Time.
1. Earl McIntosh .....	7:30	40:39
2. Charles Barnekow .....	7:30	40:40
3. Charles Struckles .....	6:00	41:11
4. C. Olson .....	6:30	41:42
5. J. Schultz .....	1:30	37:00
6. Ray Comstock .....	3:00	40:21
7. Albert Rounds .....	3:00	40:21 2-5
8. H. Johnson .....	3:00	40:21 3-5
9. J. Kosid .....	2:00	37:59 2-5
10. B. Williamson .....	1:00	36:59 2-5
11. John Prisha .....	6:00	42:00
12. M. Larsen .....	5:00	41:00 1-5

### Hoyt Confesses Trickery

New York, July 8.—At the investigation at the office of the Board of Control this afternoon, Fred Hoyt and pace-maker Mosher, of Boston, confessed to having used a catgut string in the motor-paced race at Manhattan Beach on Fourth of July night. The cat-gut was run around Mosher's belt under his sweater and Hoyt held on by his teeth to a button at the end. Hoyt declares, however, that it was used only at the end of the second mile and early in the third. His confession will doubtless result in some mitigation of his punishment, the extent of which has not yet been fixed.

### Three Cornered Match Arranged

New York, July 6.—Major Taylor, American cycle champion at sprint distances, and Harry Elkes, champion middle distance rider, were matched today for a series of races, motor paced. Jimmy Michael, former paced champion, is included in the match. The distances will

be one mile, three miles and five miles. The date of the match has not been definitely fixed, though it will be before the end of the month. It will take place on the Manhattan beach track.

### Michael's Pace Went Wrong

Springfield, July 5.—Floyd McFarland defeated Jimmy Michael here last night in a 20-mile race. Time, 35 minutes, 59 3-5 seconds. Up to the 13th mile Michael led despite repeated efforts of the Californian to head him, but then the former's machine gave out, and he lost five laps. Michael's pace having given out McFarland also gave up his in the last mile, the two having an amusing sprint for the tape, in which McFarland led by a foot.

### The Golden Wheel Race

The annual golden wheel race, an event of two hours a night for six nights, commenced at Charles River track, Boston, last week, and should have concluded Saturday. Heavy rain made a postponement until Tuesday necessary. At the close of Friday's session Moran led with 341 miles 1,577 yards; Stinson, second, 336 miles, 105 yards; Champion, third, 328 miles 640 yards; Nelson, fourth, 317 miles, 206 yards. At the windup, Tuesday evening, Major Taylor was to meet Cooper, Downing, Gascoyne and others.

The McEachern-Michael race, made impossible by Saturday's rain, has been postponed indefinitely.

### The Late Don. Smith

Syracuse, July 8.—The funeral of Dan Smith, whose death was briefly recorded last week, was in charge of the Elks. There was a large number of floral tributes, among them being a "Gates Ajar" from the Elks and a broken wheel from the Olive Wheel Co. employees. Mr. Smith was ill only three days, his death being caused by inflammation of the bowels. He was giving instructions to a representative of the company at his bedside when he passed away. Smith had lived here for 10 years. For five years he has been manager of the Olive Wheel Works

## SPORT AND PASTIME.

and prior to that time was in the employ of E. C. Stearns & Co. He was also interested in the Holley Motor Co.



### Taylor's European Record

During his European tour Taylor started in eighteen match and open scratch races, and won fourteen of them. He rode four races against tandems, winning three. He was once successful, and once unsuccessful in handicaps. His record in scratch events is here tabulated:

Date.	Place.	First.	Second.
April 8.	Berlin.....	Arend.....	Ellegard.
April 11.	Berlin.....	Taylor.....	Arend.
April 19.	Verviers....	Taylor.....	Grogna.
April 22.	Roulaix....	Taylor.....	Grogna.
April 29.	Anvers.....	Taylor.....	Grogna.
May 3.	Bordeaux....	Taylor.....	Ferrari.
May 6.	Nantes.....	Taylor.....	Gascoyne.
May 8.	Orleans....	Taylor.....	Bixio.
May 16.	Paris.....	Jacquelin.	Taylor.
May 18.	Turin.....	Ellegard.	Ferrari.
May 27.	Paris.....	Taylor.....	Jacquelin.
June 1.	Anvers.....	Taylor.....	Protin.
June 3.	Berlin.....	Taylor.....	Arend.
June 5.	Copenhagen	Ellegard.	Taylor.
June 6.	Hanover....	Taylor.....	Arend.
June 10.	Anvers.....	Taylor.....	Grogna.
June 15.	Toulouse..	Taylor.....	Vanden Born
June 17.	Agen.....	Taylor.....	Ellegard.



### Karl Kron Still Touring

An English paper informs its readers that one of its correspondents recently overtook an old gentleman riding a high Columbia bicycle, No. 234, made in 1884, and that its mileage since that time had been 27,672. The paper in question suggests that the rider was none other than Karl Kron, whose remarkable work called "Ten Thousand Miles on a Bicycle" will be remembered by veteran cyclists, and that he is now riding from Land's End to John O'Groats. Kron was one of the eccentricities of the cycling world twenty years ago.



A company has been incorporated to build a track at Syracuse, N. Y. The pa-

pers were signed by W. Judson Smith, president of the Syracuse, Lakeside and Baldwinsville railway, James P. Devine, local manager for the American Bicycle Co., Arthur R. Peck and Charles Loof, owners of Lakeside Park. The track will be completed this month. It is to be one-eighth of a mile.



### QUICKLY BORN ENERGY

One of the most striking features of the automobile industry is the avidity with which those in charge of retail establishments are grasping the situations that rapidly present themselves and

## REMEMBER.

A call on 'Phone 1-37-25

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REPAIR SHOP

When your

# AUTO

## MEETS WITH AN ACCIDENT

from anywhere within ten miles of City Hall. Quickest possible repairs; fair prices.

**H. BARTOL BRAZIER,**

Manufacturer of Naphtha Vehicles,

811-13-15 Fitzwater Street.

turn to account methods of advertising and business catching which could do credit to a much more aged trade. An example of such hustling is the accompanying advertisement of a Philadelphia dealer.



## RACING IN EUROPE

The racing for the great prize of the republic commenced in splendid weather. Fully 10,000 spectators saw the events. There were 12 heats, in which the two riders qualified for the second round, which had eight heats, the winners only qualifying for the semi-finals, to be run June 30th. The winners of the heats were Grogna, Vanden Born, Broka, Protin and Michiels, all Belgians; Ellegaard, Dane; Jacquelin and Louvet, French; Momo and Conelli, Italians; Arend, German, and Seidl, Austrian. Tommaselli was defeated when he was well in the lead by a puncture which caused him to fall.

In the second round the winners were Jacquelin, Arend, Seidl, Ellegaard, Vanden Born, Momo, Ferrari and Conelli.

The second meeting took place on June 27. The nine heats of the consolation race were won by Grogna, Deleu, Protin, Tommaselli, Schilling, Bourotte, Louvet, Jue, and Millo, with no particular features. In the first semi-final Grogna had no difficulty in defeating Louvet and Jue by two lengths. In the second the first surprise happened when Deleu simply jumped away from Tommaselli and won by five lengths. In the last Protin won by a wheel from Schilling.

The three winners all being Belgians, the final might be called a Belgian championship run in Paris. Grogna won with ease from Deleu, while the old time champion of many lands was third by a few inches.

In the foreigners' race, first heat, Ellegaard won easily from Ferrari and Dirhelmer. In the second Protin from last position, surprised Arend and Conelli, and won by a yard. The third heat was just as exciting. Momo was sent off by Major Taylor, who was greeted with a cheer. By some miscalculation Momo ran against Seidl, who came in touch with Deleu.

Momo won with Seidl second. The latter protested, and Momo was disqualified. In the last heat Grogna won from Eros and Vanani.

The four winners lined up in the final amid loud yells for Momo. Protin again tried to run away, but did not succeed, and Seidl took the lead. Entering the home stretch Seidl kept his lead of a few inches with ease. The Dane had to be satisfied with second place, and Protin with third.

People thought Dickentmann would have a runaway ride in his match of one hour with Robl at the Friedenau track, Berlin, on June 23. Robl took the command on the second lap and at once sent his tandem off at full speed. At five kilometers he was within 7 seconds of the record. About the 40th kilometer, as Robl was about to change pace, his second tandem forced Dickentmann to go up on the turn. He lost his pace and made no further effort. The German covered over 64 kilometers in the hour. He covered 20 kilometers in 18:11, as against the former record of 18:33 4-5, and 25 kilometers in 22:50, the former record being 23:28 2-5.

Geneva, Switzerland, had the good fortune of seeing Major Taylor in the last meeting at which he appeared before sailing. About 4,000 spectators assembled at the old quarter-mile junction track to see him ride against the tandem team Gougoltz-Henneberg. In two straight heats the colored man won. The tandem each time took the lead at slow speed. Taylor waited until the home stretch and won with great ease. In the three-quarter-mile handicap, with fifteen starters, Taylor was at scratch, but his nearest competitor had 60 meters and the American gave up.

Just the opposite happened at Lyons on June 23, when the major started from



## CYCLE SPORT AND PASTIME.

scratch in the 1,000 meters handicap. In a magnificent effort he passed everybody in the last lap and finished the distance with three lengths to spare. In the match against the Lambrechts-Lagarde tandem the latter led in both heats at a fast clip. In the first heat he won by one-third of a length, but in the second he jumped in front in the middle of the last turn and won by three lengths.

No long distance race has been held for a long time in which were so many accidents as in the 24-hour race at Verviers on June 22 and 23. Until the 24th hour it was an unpaced event, but during the last hour it was paced, and as the leading riders were close together, says a Motor Age correspondent, the last hour proved a savage affair, which the 8,000 spectators, by their yelling, rendered more exciting. At the end of 23 h. 30 m. Fouareau was second, three laps from Kneff. Twenty minutes before the end he was only two laps behind, but a tire punctured and he lost half a lap. Then he went after the leader "with his teeth clapping for rage," and accomplished the extraordinary feat of making up all the lost ground just three minutes before the end and then, passing his rivals, still gained about 250 meters. Fouareau won with a total of about 372 miles. M. Kneff was second and C. Kneff third.

In the 100-kilometer race at the annual amateur championships of France, a boy hardly 16 years old not only won with ease, but broke all amateur world's records in competition from the 20th kilometer. The principal times were as fol-

records in competition from the 30th kilometers, 56:47 3-5; 75 kilometers, 1:27:22 2-5; 100 kilometers, 2:00:12 1-5; 1 hour, 52 kilometers 60 meters, as against 51 kilometers 231 meters. Chapperon was second at five laps.

Bauge made a trial against the 100 kilometers and 100 miles road records on June 23 near Paris. He was paced by a 16-horsepower vehicle with a wind shield. A puncture caused him to ride nearly 30 kilometers on the rim, and he missed the 100 kilometers record by 2 minutes, but continued for the 100 miles, which he covered in 3:51:08, as against 3:57:05, the former record.

A five kilometers race was run at Hanover, Germany, on June 16. Bouhours managed to get a lead of 150 meters about three laps before the finish. Just then Robl followed his tandem so fast that women shouted from terror, and came within about six yards of winning the hard-fought race.

The Great Prize of Agen was run on June 16. Ellegaard was too strong for the rest of the bunch and won handily both the Grand Prix and the handicap. In the tandem race, with Conelli as team mate, he won again, defeating Vanden Born and Dangla.

The old Dutch champion, Jaap Eden, made his reappearance on the track on June 16 at Tilburg, his native country. The event was a pursuit race between him and Tuyn, and he caught the latter on the eighth lap.



## IN THE WORLD OF INVENTION

Two of this week's patents are to Mr. White, and both relate to frame construction in motor bicycles. Neither is particularly prepossessing in appearance, nor have they much to recommend them from a mechanical standpoint. It is not unlikely that in time the trend of motor cycle construction will be toward spring suspension of the driving mechanism and perhaps of the rider, but the devices covered by these patents are too cumbersome to be more than pioneers.

Letters patent No. 677,485, dated July 2, 1901, to Edward Y. White, of San Antonio, Texas.

The device covered is shown in figure 1, and consists of a truss for carrying the motor, which is supported at its rear end by bolts attached to the frame near the rear axle. The front end has a vertical movement on a block attached to the frame and at this point is also attached the lower end of the seat mast, the upper end of which passes through the upper frame tube with an allowance for a sliding motion at that point. The forward support of this truss is shown as an S shaped spring which is attached to the rigid portion of the frame.

This device might be considerably improved by attaching the rear ends of the truss at instead of near the rear axle, thus making its swing concentric with the rear sprockets and avoiding varying tension of the chain. It is also certain that a spring of the style and attachment shown and of sufficient strength to carry the weight applied, would in a short time rack the rigid part of the frame to pieces. These modifications might be made without departing from the spirit of the invention or the scope of the patent.

Letters patent No. 677,830, dated July 2, 1901, to the same party, relates to a motor cycle frame, a side elevation of which is shown in figure 2.

The frame consists of two parts, pivotally connected slightly at the rear of the seat post, and provided with a telescopic joint in the lower portion of the frame just forward of the crank bracket. This joint is provided with a helical spring which allows flexibility of the frame in vertical plane.

The first obstacle would appear to be the difficulty of providing connections of the style shown with sufficient freedom of motion as to assure the lateral alignment of the frame under the strain to which a motor bicycle frame is submitted.

### Collection of Automobile Pumps

The week's patent issue includes three automatic pumps, all by the same patentee,

and all modifications of ideas which have been worked with varying success by other inventors.

Letters patent No. 677,709, dated July 2, 1901, to George B. Stacy, of Boston, Mass., relates to a pump with the particular object of providing pressure as in automobiles where the gasoline is kept under pressure to provide for the proper feed to the burner.

The illustration, figure 3, shows two views, one a side elevation and the other a plan partly in section. The cylinder of the pump is mounted to slide longitudinally in bearings attached to the frame of the vehicle. On the adjacent wheel of the vehicle is secured a cam on which is adapted to travel a roller, journaled to the outer end of the plunger rod of the pump. On the outside of the cylinder is a rack, in mesh with a gear wheel, which has its shaft journaled in one of the bearings supporting the cylinder and on this shaft is secured a crank arm, connected by links or other devices with a hand lever under control of the operator. Around the plunger rod is a helical spring so placed as to normally hold the plunger in the outermost position in the cylinder.

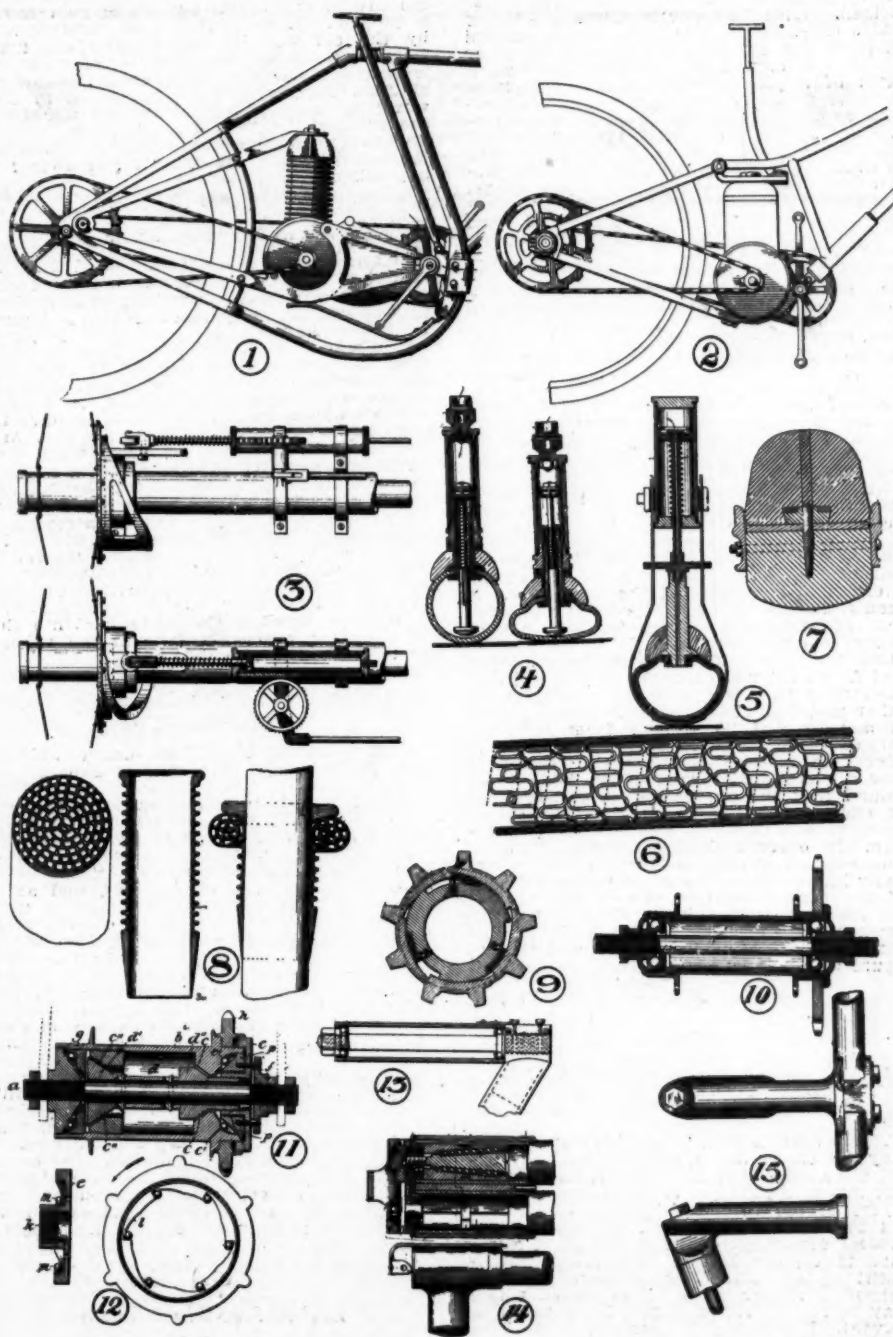
When the operator actuates the hand lever the gear wheel is rotated and the position of the cylinder is shifted relatively to the cam wheel and the stroke of the plunger is regulated accordingly. When the wheel containing the cam rotates the cam imparts an inward sliding motion to the plunger and the spring imparts a return motion to the plunger during which air is drawn into the cylinder. During the inward stroke of the plunger, caused by the action of the cam on the roller, the air is forced out of the cylinder through a pipe to the tank.

Letters patent No. 677,710, dated July 2, 1901, relates to a pump which is automatically operated by motion derived from displacement of a tire under pressure. The illustration, figure 4, shows two views, in the first of which the tire is shown in its normal condition and in the other under pressure.

The air is drawn through an aperture in the upper part of the cylinder which aperture is covered by a valve to prevent the escape of air thus drawn in. When the wheel is moved into such position that the plunger is forced inward owing to the compression of the tire under load, the air passes by the plunger to the outer portion of the cylinder. Upon the removal of the pressure the helical spring surrounding the plunger rod forces the plunger back into its original position and the air in the outer portion of the cylinder is forced through ports provided for the purpose into the tire.

Letters patent No. 677,708, dated July 2, 1901, covers a device somewhat similar to the preceding one. The results, however, are obtained differently. The pump is ac-

WORLD OF INVENTIONS.



THE WEEK'S PATENT DRAWINGS.

## WORLD OF INVENTIONS.

tuated by a metal band surrounding the tire and clamped to the sides of the pump cylinder. Figure 5 of the drawings is a sectional view and shows the tire as depressed under a load. With this device the usual filling valve extending through the rim is utilized and on the inner end of this valve is screwed a cross-head carrying the hollow stem of a piston which is arranged in a cylinder normally held in a downward position by a helical spring surrounding the piston rod and pressing with one end against the piston head and with the lower end against the head of the cylinder. The piston or plunger is of the usual cup shape. Air passes into the cylinder through openings in the lower head and is forced from the cylinder by the plunger through the hollow stem and the valve in the tire. For this purpose the cylinder is actuated in an up and down direction on the stationary plunger by means of the before-mentioned band which has a covering at the bottom and spans the tire, its sides extending through bearings in the cross-head to then connect with blocks secured to opposite sides of the cylinder. To provide for adjustment of this band or stirrup to fit different diameters of tires the upper ends of the stirrup are provided with notches which are adapted to engage with a pin provided, for the purpose of holding it in position.

Letters patent No. 277,378, dated July 2, 1901, to Columbus Stone, of Manchester, Tenn., assignor of one-half to Charles E. Rhodes, of the same place.

So long as there is a demand for resilient tires the ambitious inventor will direct his energies to knocking out the pneumatic. It seems that nearly every possible combination of springs has been utilized, but in this case a new adaptation is presented. The outer portion of this tire is to be of rubber and fabric after the manner of the ordinary pneumatic tire, but may be of leather or other material. The spring is in the nature of a helix and is wound from a ribbon formed of a single length of spring wire, curved to and fro in a lateral direction to give a corrugated form and the helix is so wound that the curves of the corrugations of one convolution lie against the corresponding end curve of the adjacent convolution. In order to hold the convolutions in this relation a wire is laced in a substantially helical form through the adjacent ends of the corrugations in the ribbon, certain of the corrugations being skipped to give greater freedom of movement to the helical spring. The device is shown in section in figure 6.



### A Quick Repair Tire

Letters patent No. 677,510, dated July 2, 1901, to Uzziel K. Smith, of Chicago, assignor of one-half to Thomas Kane, of the same place.

This invention aims to provide a tire which may be easily and quickly repaired without the necessity of removing from the rim. The inventor employs, between two or more layers of the tire, a substance which will not be vulcanized by heat, but which shall possess cementing qualities and be of a nature to dry or harden during and subsequent to the vulcanizing process. For this purpose a rubber cement is employed which may be readily rendered plastic by use of a solvent. Preferably this cement is the kind used in ordinary repair work and is soluble in benzine. In the event of a puncture, such as that made by a tack or the like, a small portion of the solvent is injected and acting upon the cement reduces it to a plastic or semi fluid consistency so that it will

spread and quickly fill the opening. The inventor states that a tire, made within the scope of his patent, is not a puncture closing tire in any sense, but might be termed a quick repair tire. It will be remembered by the old war horses of cycloedom that Thomas Kane, to whom half of this patent is assigned, was also, in a sense, the backer of John Palmer when he presented to the world his now widely known Palmer tire, the first of the "self-healing" tires, which probably made more money for its inventor than any tire on the market has done for any other.



### Tire Securing Device

Letters patent No. 677,814, dated July 2, 1901, to Charles W. Stapleton, of New York, relates to a manner of securing solid rubber tires to wheels. A section is shown in figure 7. The retaining device consists of two flat bands, each of considerable thickness and provided with rounded edges. At intervals are mounted cross bars which are rabbited at the upper corners to receive the bands, which may be secured to the cross bars in any desired manner. The cross bars are proportioned in depth, so that when the bands are mounted in a tire at the desired distance from the base thereof the bottom of the cross bar will be in the same plane with the base of the tire and when mounted on a vehicle wheel the cross bars will be in contact with the steel tire or with the felloe if no steel tire is used. For attaching to the rim or felloe a hole is provided through the tire and the cross bars, whereby a screw is inserted through the cross bar into the felloe, after which the hole in the rubber portion may be plugged.



### A Convolute Tire

Letters patent No. 677,415, dated July 2, 1901, to Webber G. Kendall, of Providence, R. I.

Here is an oddity in the way of a cushion tire, the unique feature of which lies largely in the method of construction. The drawings, figure 8, shows at A a section of the completed tire, at B a portion of the band of which the tire is constructed, and at C the band being rolled up to form a tire. The form of this band can be readily seen by a glance at the sectional portion of B. It is sufficient length that when the ends are joined it will be of proper size to make a tire of the desired circumference. In the process of manufacture this band is slipped onto a mandrel of a size to fit and on this mandrel is a sliding block, shown sectionally at C. To form the tire this sliding block is forced against the rounded edge of the band. Owing to the curvature of the block the band is rolled over onto itself and this is continued until the entire band is formed into a roll, the flat, tapered portion serving to give a smooth finish to the exterior. It is proposed that the rubber used shall be in proper condition for vulcanizing and after the tire is formed, as explained, the whole is to be vulcanized into an integral mass.



### English Free-Wheel Clutch

Letters patent No. 677,592, dated July 2, 1901, to Henry W. Patrick, of Birmingham, England.

The device covered by this patent is a simple form of free wheel clutch and is of a pattern popular in the English trade.



## WORLD OF INVENTIONS.

The device is shown, sectionally, in figure 9. It will be noted that the clutch is direct and positive which is also a common form of construction in English machines.

### The Sturgis Hub

Letters patent No. 677,429, dated July 2, 1901, to Lee Sturgis, of Elmhurst, Ill.

This invention is a radical departure in hub construction. As shown in figure 10, the ends of the hub, including the flanges, contain the bearing cup and ball retainer and are screwed on to the tubular barrel. The axle and cones are of the usual style, the novelty consisting in assembling the hub in a manner almost opposite to that usually employed. It is proposed that this hub shall be made entirely of stampings, of course excepting the axle and cones.

### A Rocker Seat Post

Letters patent No. 677,705, dated July 2, 1901, to John A. Shaw-Mackenzie and Ernest A. Crowsley, of London, England.

Just why anyone should want a saddle to rock in a lateral or transverse direction is not clear. This invention relates to a seat post wherein the portion thereof to which the saddle is attached is mounted on a ball bearing in order to provide for the desired lateral motion. The internal member of this, as shown in figure 13, is reversible, allowing the extension to be turned either forward or backward.

### Another Coaster Brake

Letters patent No. 677,682, dated July 2, 1901, to Ernest L. Morse, of New Bedford, Mass.

This relates to a coaster brake shown sectionally in figure 11. The letter a represents the ordinary stationary axle, b is the outer shell of the hub, having the inwardly projecting inclined surface c and the ball cups c' integral therewith. A ring having an inclined surface c'' is screwed within the hub to a shoulder. A sleeve, d, is adapted to slide laterally on the axle and having cones d' and d'' integral therewith, adapted to bear against inclined surfaces c' and c'' at certain times to cause friction. This sleeve is prevented from rotating on the axle when said cones and inclines are in frictional contact by pins passing through the axle and into slots in the sleeve which allow the sleeve to have a lateral motion on the axle. A ball cup g is forced to a shoulder in the hub shell and a cone is screwed on the axle as a bearing for the balls in the ball cup. The sprocket h having inclines on its inner diameter adapted to receive the balls as shown in figure 12 is mounted on the hub, so that when revolving in a forward direction the balls act as a clutch and revolve the hub in the same direction, but when the sprocket is held in a state of rest the hub is free to revolve in a forward direction. A sleeve k interiorly threaded has a cupped flange e, the edge of which is provided with inclines adapted to receive the balls m. A cone p is adapted to bear against the balls in cup c' and is screwed to the flange e by shouldered screws the outer ends of which are adapted to have a

lateral motion through apertures in the flanged nut f, which nut is held in place on the shaft by a jam-nut and thus holds the flange sleeve k rigid with the axle. The sleeve k is threaded onto the ends of the sleeve d and is so adjusted thereon that the cones on the sleeve d are just out of contact with the incline c and c'' when the balls m are loosely placed within the inclines of flange k and a washer which is interposed between the balls and the side of the sprocket. The sleeve d, the flange k and the flange nut f, when adjusted, are held in position by the jam-nut.

The operation of the device is as follows: When the sprocket is revolving in a forward direction the hub is revolved therewith by the clutch mechanism already described. When it is desired to retard the motion of the wheel the sprocket is revolved slightly in a backward direction which causes the balls m to roll up the inclines of the flange k and thereby forces this and the flange sleeve d to the right and bring the cones d' and d'' into frictional contact with the incline surfaces c and c''.

### Adjustable Handle Bar

Letters patent No. 677,373, dated July 2, 1901, to John M. Rauhoff, of Chicago.

The handle bar covered is designed to be adjusted while the bicycle is in motion. At the top of the handle bar stem is attached a bichambered head which receives the inner ends of the handle bars which are axially parallel to the plane of the steering wheel. These ends are slotted that they may be more easily expandable and are held in place by wedge shaped reciprocable mechanism in the tubing ends. The handle bars are also provided with gears operating in the manner common to this type. The wedges, one of which is shown sectionally in figure 14, are grooved longitudinally and like grooves are placed in the pieces which together receive the steel balls acting as anti-friction rollers between the said wedges and the internally coned and externally cylindrical paired blocks, which blocks are held together by means of a split ring, held within a circumferential groove of said cylindrical blocks. The point end of the wedges are cylindrical and threaded to receive a tubular, internally threaded screw, which passes through a bar having trunnioned ends which pass through the ends of an eccentric cam whose surfaces slide against caps fitted in the chambers of the head. These cams are integral parts of a T shaped lever, which is shown in the drawing and by which the above described clutch is operated. The means by which the desired adjustment of the handle bars is obtained may be readily seen from the drawings.

### Handle Bar Extension

Letters patent No. 677,428, dated July 2, 1901, to George G. Spencer, of Chicago, assignor to Chicago Handle Bar Co.

This device is merely an adaptation of the above company's well-known style of adjustable handle bar to a stem having a forward extension and will be readily understood by referring to figure 15.

THE CYCLE AGE.

THE MOTOR AGE.

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If not replace it with one of our No. 163 Roller Chains. They are stronger, will elongate less, and adapt themselves to a worn or dirty sprocket far better than any Solid Block Chain of the same size on the market.



Twin Roller 1-inch pitch, 5-16-inch or 3-8-inch wide, will fit sprocket cut for regular B. Block pattern.

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### A Boys Size Automobile

About the proudest boy in the city of New York is Charles Guenther, aged 10, who is navigating the boulevards in what in probably the smallest motor carriage



ever built for actual use. This diminutive auto is an electric, built by the boy's father, E. B. Guenther, a skilled machinist. The body is three feet long and 13 inches wide. The front wheels are

16 inches in diameter and the rear wheels 20 inches.

Seen on the street, the little machine seemed to operate as satisfactorily and to be under as perfect control as the more pretentious carriages driven by adult chauffeurs.

For Ailing

### For Ailing Chauffeurs

The following announcement was forwarded to Motor Age by Mr. Chadsey:

The New York Automobile Operators' Benevolent Society has been organized for the purpose of benefiting members socially and relieving their financial needs in times of distress caused by sickness or death. The initiation fee is \$1.00 and the dues 50 cents a month, which must be paid six months before a member is entitled to receive financial aid. Seven dollars per week is paid for disability caused by sickness or accident. The meeting-rooms are located at 305 West 54th street, New York, where meetings are held on the first and third Mondays of each month. Any operator desiring to

enroll may either call at the hall or communicate with Ralph C. Chadsey, room 417, 99 Nassau street, New York. Any person capable of driving an automobile may become a member. This society is chartered under the laws of New York. It is but one year old. The present officers are T. P. Murphy, president; E. J. McEwen, recording secretary; B. E. Bel-lows, treasurer; Wm. Hornsby, financial secretary.

Alderman Alling, of Chicago, is in a great pickle over the late automobile demonstration. "The papers the next day came out with the statement that I was the first to 'make a break' for the beer wagon Saturday afternoon at Garfield park," he said. "As a matter of fact, I stayed through the races and then drank nothing stronger than soda water. Next day I had to appear before a Sunday school and lecture the scholars on the 'Evils of Intemperance,' using a black-board to make my meaning clear. What do you suppose the scholars thought of me?"

L. C. Koenen, who has opened a store for the repair and general care of automobiles at State and Ontario streets, Chicago, is highly recommended by automobilists who have had occasion to test his skill. Mr. Koenen was for a number of years connected with the Panhard establishment, in France, and is particularly adept at handling gasoline vehicles.

Thomas Dewhurst has built what is to be the first automobile made in Kentucky. His place is at Lexington. His machine, which he calls the Dewabout, weighs 350 pounds, carries two people and has a four horsepower gasoline engine. From 15 to 25 miles an hour is its speed rating.

As a result of their experience at the Duryea factory at Peoria, Charles Turner and Fred Ellis have made a gasoline vehicle. They hope to be able to find capital among the people of Peoria to manufacture.

Among the visitors at the offices of this paper last week was Nicholas Escalante Peon, of Merida, Yucatan, Mexico. This gentleman has been spending

# COMFORT WITH SPEED IS THE CUSHION FRAME MOTTO

The CUSHION FRAME is positively the greatest bicycle invention since the advent of the pneumatic tire. It practically increases the resiliency of the tire four fold without in the least detracting from the speed or power of the wheel (as compared with the so-called rigid frame). The most enthusiastic converts to the Cushion Frame are the old-time, speedy "get there" riders who at first "scoffed" the idea of COMFORT being combined with "speed and power" in a bicycle :: :: :: ::

**HYGIENIC WHEEL CO.**

220 Broadway, NEW YORK

Owners of the Cushion Frame Patents.

## ADVERTISEMENTS.

several days in the north on business connected with the motor vehicle industry. He has owned three vehicles, but reports that there is no great demand for them in Mexico, largely on account of the rough roads. He has hope, however, that a year or two will bring about a great improvement in the demand.

Champaign, Ill., has decided that automobiles must be fitted with bells not less than four inches in diameter, lamp, and brakes capable of bringing the vehicle to a standstill within 20 feet when traveling at 10 miles an hour, which has been set as the speed limit.



### Kilos and Miles

The following table of reference will be found handy in comparing European records and distances with our own:

Kilos.	Miles.	Yards.	Kilos.	Miles.	Yards.
1.....	0	1,093 2-3	15.....	9	565
2.....	1	427 1-3	16.....	9	1,658 1-3
3.....	1	1,521	17.....	10	992 1-3
4.....	2	854 2-3	18.....	11	326
5.....	3	188 1-3	19.....	11	1,420
6.....	3	1,82	20.....	12	753 1-3
7.....	4	615 2-3	21.....	13	87
8.....	4	1,709 1-3	22.....	13	1,180 2-3
9.....	5	1,043	23.....	14	615 1-3
10.....	6	376 2-3	24.....	14	1,068
11.....	6	1,470 1-3	25.....	15	941 2-3
12.....	7	804	26.....	16	123 1-3
13.....	8	137 2-3	27.....	16	1,068
14.....	8	1,231 1-3	28.....	17	246 2-3

H. W. Cramp, the shipbuilder, and Lewis Nixon, who is associated with him in business, are directors of the United States Long Distance Automobile Co. A shorter distance title would facilitate correspondence.

French enthusiasts now contemplate the purchase of land whereon to build a track for automobile racing, and for the accommodation of 30,000 spectators.

A Buffalo paper estimates that there are about 200 automobiles owned in that city. If it had trebled the number it would have been nearer the mark.

The Milwaukee Automobile Co. will shortly ship one of its steam trucks to its London agents, Shippey Bros., Ltd.

The latest plaint of the farmer is that laying hens are scared by automobiles to such an extent that they go out of business.

A Mr. Krebs, of Ottawa, O., has built an automobile in his machine shop.

## MISCELLANEOUS

Advertisements under this head 5 cents per word first insertion; 3 cents per word each insertion thereafter. Cash with order. Express orders, postoffice orders or stamps received.

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FOUR first class salesmen to travel with a steam automobile, placing agencies and selling a line of parts and specialties. Territory includes a portion of New York state, New Jersey, Pennsylvania and New England. Must have A1 references and be able to furnish cash security for carriage. Address E. S. Motor Age 1

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2. To place advertisers in direct communication with prospective purchasers.

Applicants for catalogues will please state specifically the names of the concerns whose catalogues they desire and enclose stamps to cover postage.

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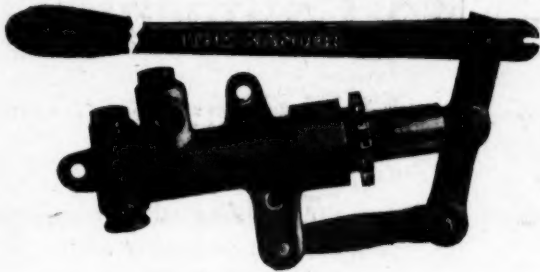


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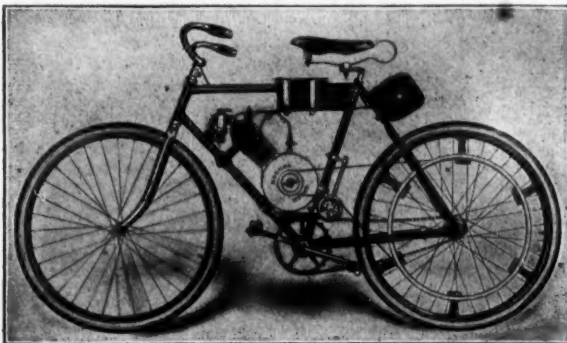
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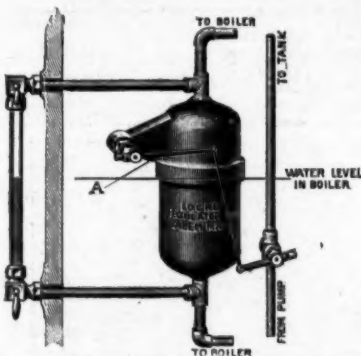
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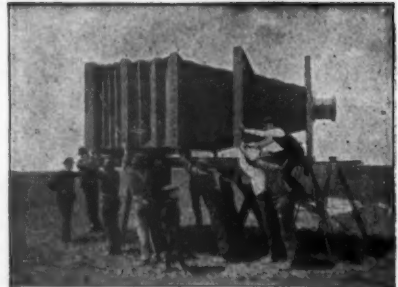
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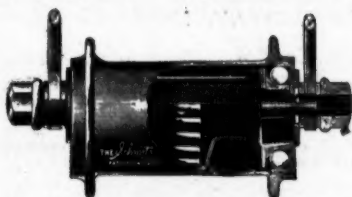
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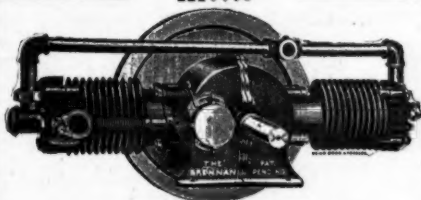
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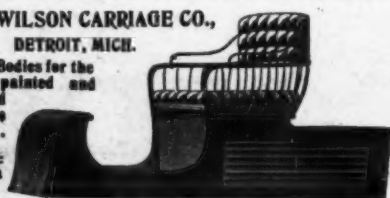
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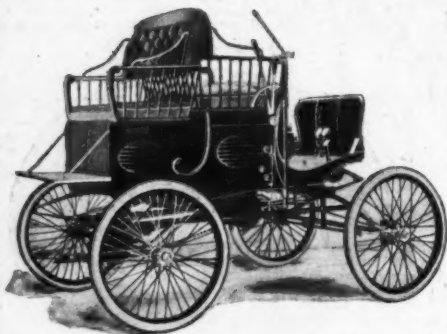
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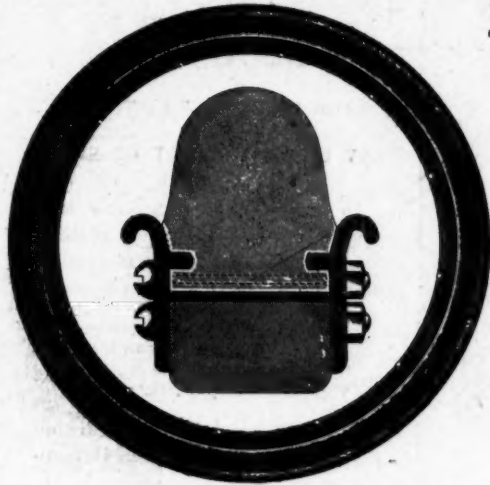
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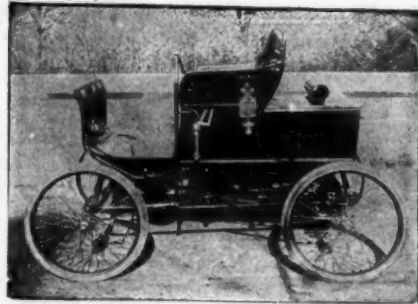
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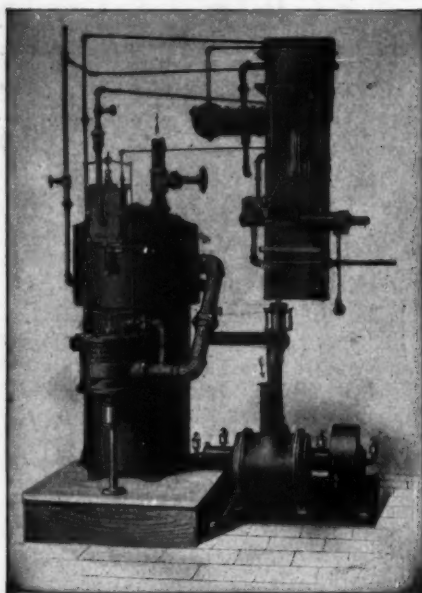
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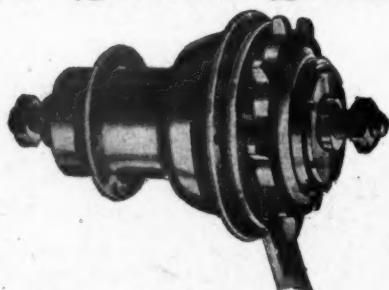
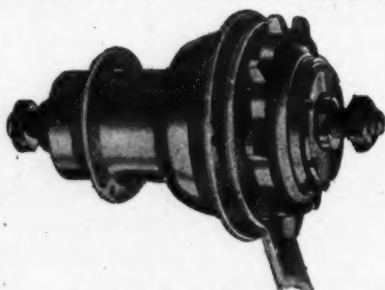
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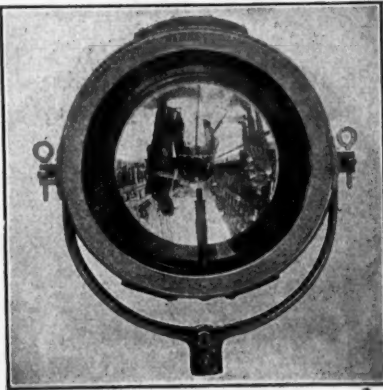
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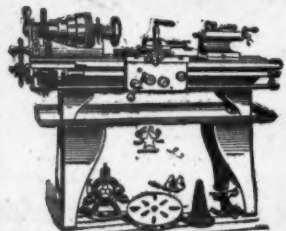
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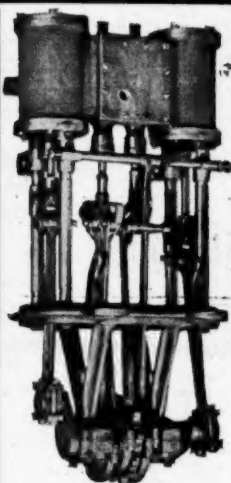
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Our No. 5 Lathe is a right and left-hand  
screw cutting lathe, swings 11 inches on  
face plate; 34 inches between centers. Is  
back-geared and has hollow spindle. Has  
set-over tail-stock and swivel tool carriage  
for tapering and boring.

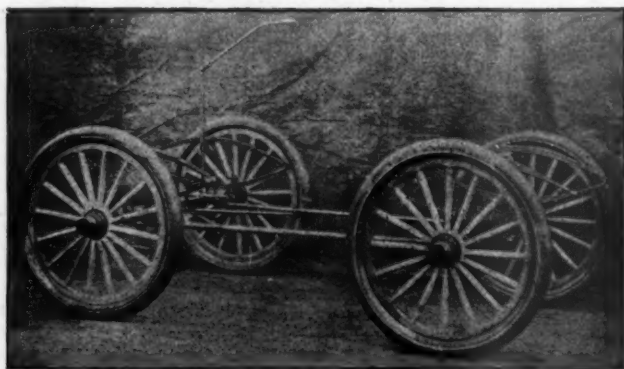
### SPECIAL OFFER!

The list price of No. 5 lathe is \$90. We  
will furnish the lathe with set of slide rest  
tools, three lathe dogs, 5-inch chuck with  
two sets of jaws, lathe arbor and set of Morse  
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in all amounting to \$110, for \$90 cash. Goods  
carefully boxed and delivered on board cars,  
Rockford. This gives the best lathe made,  
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than you can buy an inferior machine.

Full Descriptive Catalogue Free on Application.

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and you ought to have it. It is made for revolving axles and is pivoted between the bearing and spring block, enabling the bearing to move free and easy with the axle always. Our catalogue tells all about it. . . . .

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**THE NEW "NATIONAL"**

**ELECTRIC VEHICLE—60 MILES ON ONE CHARGE.**

**YOU HAVE BEEN WAITING FOR IT**

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**GASOLINE? YES! BUT NO ODOR, NOISE OR VIBRATION—IMMEDIATE DELIVERY.**

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**RALPH TEMPLE CO.**

**293-295 Wabash Avenue,  
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THE  


# Mitchell Motor Bicycle



THE WHEEL OF PROGRESS FOR THE RIDER  
 THE WHEEL OF FORTUNE FOR THE DEALER

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**SINGLE LEVER CONTROL**  
 Speed variation 4 to 25 miles per hour.

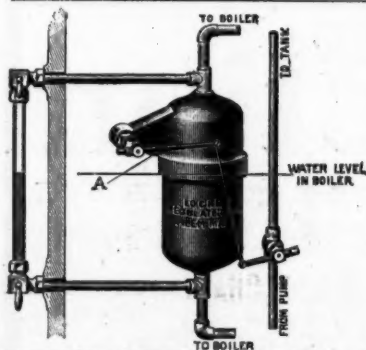
PRICE

**\$200**

Agents wanted. Write for Catalogue of Motor Cycle and equipment.

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FOR STEAM VEHICLES.

No more burnt out boilers. . . Keeps water in the boiler as long as there is water in the tank. . . Relieves the anxiety of constantly watching the mirror.

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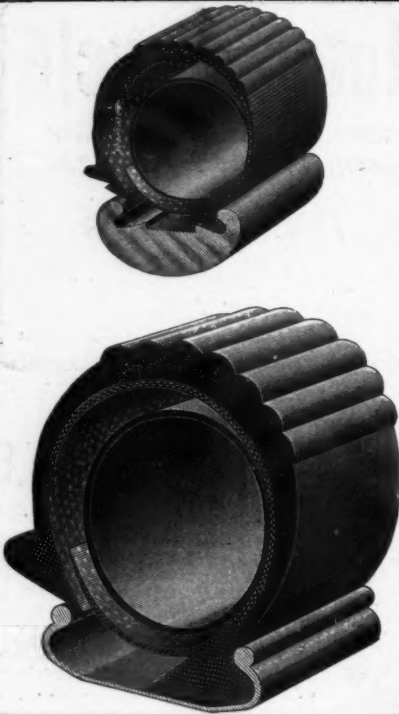
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